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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Jump, You Pedestrians
Television In Disgrace
'Big Daddy' Ireland
Quotes of the Week
The Rain In Spain?

Stories of the Week

At a civic banquet Rabbi Finkelstein was seated next to Mrs. Pompus P. Puque.

"My ancestors," she downnosed, "not only came over on the Mayflower, but signed the Declaration of Independence."

"So?" countered the rabbi. "One of my ancestors took down the Ten Commandments."

According to custom, the bride-and-groom floated out onto the dance floor ahead of everyone else.

"Your mother doesn't approve of me," he whispered into her fluttering ear.

"What makes you think that?" she whispered back.

"Those towels she gave us are embroidered HERS and ITS."

Jump, You Pedestrians

Over an announcement story about the new Dodge and Dart cars, our neighboring publication, *Automotive News*, printed this headline:

12 DARTS, 11 DODGES FOR 1960

Looks like a jumpy year for pedestrians.

To the Dodge Div. (which also produces the new Dart auto) of Chrysler Corp. we offer —free of charge—a potent advertising slogan:

"The Car That's Aimed at the Pedestrian."

Television In Disgrace

Next to the Steel Strike, commonest conversational topic everywhere you go is revelation of fraud in TV's quiz shows.

Public shock is exceeded only by individual anger.

We were taken in, we were hoodwinked, we were played for suckers by callously contemptuous charlatans, and we are damned sore about it.

Particularly dismayed are parents. Until Congress exposed those frauds, the quiz show winners had been heroes—great examples of the worth of education—to schoolchildren.

Sputnik spurred a nationwide revival of interest in better education among parents. The

(Concluded on Page 9, Col. 1)

Mathes Bows Conditioners, Heat Pumps

FORT WORTH, Texas—"High capacity" room air conditioners and "extremely versatile" heat pumps were featured among the more than 100 models that comprise the 1960 line of Mathes Co. domestic and commercial air conditioners and heat pumps.

Some 350 dealers and distributors of the company attended the launching of the new line at its headquarters here.

Benjamin R. Ebersman, president, told the group that the company's new 1-hp. "Gold Medallion Special Custom" model 1350C develops a capacity of 13,500 B.t.u.h. (ARI 110-58).

The company also unveiled the Gold Medallion Super Custom model 2390C room air con-

(Concluded on Page 4, Col. 1)

Carrier Adding 2 Electric Resistance Heating Lines

SYRACUSE, N. Y.—The Unitary Equipment Div. of Carrier Corp. has announced that it will expand its distribution of electric heating products from heat pumps to include two complete lines of electric resistance heating equipment.

Some 400 Carrier distributor personnel attending a national sales meeting of the division here previewed the new models. They include a series of wall insert heaters and baseboard radiation panels.

Russell Gray, Carrier vice president and division general manager, said the entry into the resistance heating field was a natural supplement to the company's extensive promotion of the heat pump.

"This is a growing market," Gray declared, "and with momentum being provided by electric utilities, we know its future is a bright one."

Gray pointed out that in cooler climates most heat pumps in residences require supple-

(Concluded on Page 17, Col. 3)

Constitutionality Of Frozen Food Code Questioned

CHICAGO — Modification of the "zero-degree" frozen food handling code adopted earlier this year by the Association of Food & Drug Officials of the U. S. was called for during the recent convention here of the National Frozen Food Distributors Association (NFFDA).

The code is a suggested set of regulations for use as a guide by states desiring to establish controls. It specifices that 0° F. is the maximum tem-

(Concluded on Page 17, Col. 5)

Treasury Dept. Regulation on Room Units Changes Definition

WASHINGTON, D. C. — The U. S. Treasury Dept.'s new regulation applying the 10% Federal excise tax to all room air conditioners instead of only those of under 1-hp. rating shows some changes from the proposed rules issued last August.

As reported in the Nov. 2 issue of the NEWS, the regulation becomes effective Dec. 1. **Essential parts of the new rules are on page 15 of this issue.**

Most important change from the proposed regulation appears to be in a paragraph pertaining to the definition of taxable units.

The proposed rule defined self-contained air conditioning units, in part, as being "designed for the direct delivery of conditioned air and for the removal of heat."

At a public hearing, the Air-Conditioning & Refrigeration Institute recommended that this part of the definition be changed to read: "Is designed for the *free* delivery *without ducts* of conditioned air and for the removal of heat."

In the new regulation, this paragraph reads: "Is designed (i) for the direct delivery of conditioned air, the unit being suitable for effecting such de-

(Concluded on Page 17, Col. 1)

BEHIND PAGE ONE . . .

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Trane Plant In Salt Lake City To Serve West

LA CROSSE, Wis. — The Trane Co. here announced plans for a new, million-dollar plant in Salt Lake City to better serve its western markets.

Trane President D. C. Minard said that construction would start on an 86-acre site in the very near future.

According to Minard, the plant will be about 60,000 sq. ft. plus warehouse facilities and should be in operation within about a year. Deseret Architects & Engineers, Salt Lake City, is designing the new factory.

Trane expects to reduce transportation costs and provide faster delivery to its western

(Concluded on Page 17, Col. 2)

Steel Strike To Force Layoffs, Shutdowns Soon

DETROIT — Steel shortages soon will force some plant shutdowns and production cutbacks in the air conditioning and refrigeration industry, recent reports indicate.

Carrier Corp., on Nov. 3, advised its employes that lack of steel will force a suspension of production at its Syracuse, N. Y. plants late this month or early in December, William Bynum, Carrier president, said it would be 10 days before the company could announce the probable duration of the shutdown.

Bynum told Syracuse employes Carrier's steel supplies "are dangerously low" or badly out of balance. He stated that even if the mills were to reopen at once, "it would be six or eight weeks, or possibly longer," before Carrier could expect to get enough steel.

The company said 3,000 workers would be idled. According to a spokesman, Carrier plants that employ 6,000 elsewhere in the U. S. would continue to operate because their steel shortages are not yet critical.

Paul M. Augenstein, president of Airtemp Div., Chrysler Corp., was quoted as saying Airtemp probably will have to close

(Concluded on Back Page, Col. 1)

Blissfield Resuming Operation after Fire

BLISSFIELD, Mich. — Four days after a fire destroyed about 70% of its factory and 50% of its office facilities, Blissfield Mfg. Co. had resumed some operations on a limited basis using temporary quarters and borrowed equipment.

The company manufactures refrigeration systems and residential air conditioning systems. Employment was reduced recently from 225 to 160 because of the steel shortage.

Emphasizing that the firm is still in business, Orville W. Farver, president, said: "The question now is whether it will be more advantageous to us to rebuild the facilities we have here or change to some other location."

He added that the firm will "weigh the facts" on rebuilding costs versus moving to another

(Concluded on Page 4, Col. 4)

C. V. Hill, Doyle Moved Up by Commercial Firm

C. V. Hill

G. J. Doyle

TRENTON, N. J.—It was announced recently following a meeting of the board of directors of C. V. Hill & Co., Inc. that C. V. Hill has been named chairman of the board.

At the same time, Glennon J. Doyle, who has been vice president in charge of manufacturing, was named president to succeed Hill.

Hill has been associated with the Hill company for more than 35 years. He has held the position of president with the commercial refrigeration concern since 1953 at which time he succeeded J. S. Hill.

In his new capacity, Hill will

(Concluded on Page 4, Col. 3)

IAAC Sold to Investment Corp.

FORT LAUDERDALE, Fla. —Gilbert P. Edwards, president of Investment Corp. of Florida (ICOF) announced that the company, developer of private and cooperative housing as well as commercial and industrial real estate, is embarking on a long-range diversification program and has purchased International Automotive Air Conditioning, Inc. here.

The company will be operated as a wholly-owned subsidi-

(Concluded on Back Page, Col. 1)

1½-Hp. Heat Pump Air Conditioner Added To G-E Room Unit Line for '60

LOUISVILLE, Ky. — A new 1½-hp. "All-Weather" heat pump air conditioner is included in the room unit line announced by General Electric Co. for 1960.

The company said the line offers "a wide range of 14 models to fit every need." They range from "a very quiet unit" which can be used with adequate 115-volt house outlets, to a 2-hp. unit with 16,000 B.t.u. cooling capacity, it was pointed out.

There are three "Deluxe" models with B.t.u. outputs ranging from 6,500 to 10,000, G-E said. A "Custom" model (8,500 B.t.u.) has modern design and such features as a six-position peformance selector, stale-air exhaust, and automatic temperature control.

Two "Supreme" models (9,500 and 11,000 B.t.u. capacity) are claimed to "combine big cooling and extra quiet operation." One operates on an adequate 115-volt outlet while the other (with higher capacity) requires 230 volts.

A "Special" low-cost model (8,500 B.t.u. on 230 volts) has a low-silhouette case. Two "Super" units offer 13,000 or 16,000 B.t.u. cooling for large or open living areas and unusual heat loads, it was stated.

Two built-in models come with decorator interior baffles. Designed for through-the-wall installation, they feature plain vertical front panels which can be painted or papered or covered with wood or other material to match or harmonize with the wall.

Completing the model range are three All-Weather heat pump units. An 8,000 B.t.u. model operates on 115-volt current; the other two, with cooling capacities of 10,000 and 12,000 B.t.u., use 230 volts.

The company added: "every unit is capacity tested and must achieve proper cooling capacity before it leaves the factory. Eighty-five other rigid standards must be met or surpassed before shipment."

G-E's 1960 refrigerator-freezer line features changeable door panels which can be applied to the fronts of two new models; an automatic ice maker to be incorporated in the roll-out freezer of one 15-cu. ft. model; four "Frost-Guard" models with automatic defrosting; and straight-line design.

The changeable door panels "offer a quick easy way to change color in the kitchen," G-E said. "They make it possible to match or contrast the refrigerator-freezer with the kitchen color scheme."

YOU CAN keep cool and hear the ball game while watching television if you have a new General Electric "Supreme Thinline" which is said to operate quietly, yet deliver big cooling. This is one of General Electric's newest models in 1960. It is available in two models—a 115-volt 9,500-B.t.u. unit and the 230-volt 11,000-B.t.u. unit.

Available in April, the automatic ice maker in the one model will automatically freeze, eject cubes into a storage bucket, and store 6 lbs. of ice cubes at "non-sticking" temperature, the company said. As cubes are used, they are automatically replaced.

Because of its widespread appeal, G-E said, straight-line design will be offered in three new models that are only 28 in. wide. The new models also let the homemaker choose from a combination refrigerator-freezer in the 11-cu. ft. capacity or from two "Dial-Defrost" models of the same size, it was noted.

Leading G-E's 1960 freezer line is the "Frost-Guard" upright which "completely eliminates frost coatings on food packages, walls, and shelves."

Capacity of the Frost-Guard freezer is 438 lbs. Capacity of other freezers in the line ranges from 392 lbs. to 630 lbs.

G-E also announced that a new finish called "Nutmeg Mahogany," made by bonding tough vinyl to steel, will be available on its combination refrigerator-freezers and certain other products.

Al Bernsohn Resigns Post with NARDA

LOUISVILLE, Ky. — Joseph Fleischaker, president of the National Appliance & Radio-TV Dealers Association, disclosed here that Al Bernsohn, executive vice president of NARDA, has submitted his resignation to the board of directors.

At the same time, Fleischaker reported that he has appointed a special committee headed by Harry Price of Norfolk, Va., to seek a successor for Bernsohn.

Fleischaker said Bernsohn "is leaving for personal reasons and with our best wishes." The latter's contract with NARDA expires June 30, 1960.

Mrs. Michele Rodgers, who has been serving as director of member services, was appointed assistant to the vice president.

Midwest RSES Elects Easley

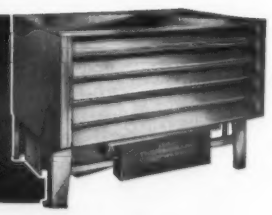
LITTLE ROCK, Ark.—G. L. Easley of Kansas City was elected president of the Midwest Association, Refrigeration Service Engineers Society, at the group's recent convention here. He succeeded Carl H. Miller of Little Rock.

Buffalo Forge Names Simonds

BUFFALO—L. Wells Simonds has been named advertising manager of Buffalo Forge Co.

He has been an account executive of Comstock & Co. for the past 14 years and previously was associated with Hutchins Co. and Hughes, Wolf & Co., both of Rochester, N. Y.

THROW YOUR COMPRESSOR *OUT!



*OUTSIDE, THAT IS!

KRAMER'S outdoor compressor is the *only* compressor designed to operate *outdoors* for *any* application under *all* temperatures and weather conditions.

Completely assembled, wired, tested and factory run-in, it arrives on the job ready to operate. Simple hookup eliminates costly installation and control adjustment time. Kramer's outdoor compressor ends waste of valuable indoor space.

WRITE FOR BULLETIN

KRAMER OUTDOOR COMPRESSOR

KRAMER TRENTON CO. • Trenton 5, N. J.

46 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

BRI To Discuss 'New Methods of Heating Buildings' at Nov. 17-19 Meeting

WASHINGTON, D. C.—Seven specialists will participate in an all-day conference on "New Methods of Heating Buildings," at the Building Research Institute's fall meeting, Nov. 17-19, at the Shoreham hotel here.

Solar and nuclear energy and electronic transmission will be discussed together with the development of new energy sources, and trends in the availability of fuels and their application to new heating systems.

There also will be a review of recent research and development work on air heating methods, hydronic, air-floor and infrared radiant systems, and performance experience in electric heating.

Objective of the conference on new heating techniques is to provide architects, engineers, building material producers, and building owners with information on recent tests and prototype devices. John Everetts, Jr., consulting engineer, Charles S. Leopold, Engineers, Philadelphia, will be the conference chairman.

"Such information will help correlate research and development investigations on other building design and construction with advances in the heating field," Everetts stated.

Other speakers will include Walter A. Friend, nuclear engineering consultant, Ebasco Services, Inc., New York City; Herbert T. Gilkey, technical secretary, National Warm Air Heating & Air Conditioning Association; Harold A. Lockhart, vice president and chief engineer, Bell & Gossett Co.; J. Raymond Carroll, associate professor of mechanical engineering, University of Illinois; Frank H. Faust, manager, market research, General Electric Co.; and R. C. Jordan, head, Dept. of Mechanical Engineering, University of Minnesota Institute of Technology.

Prof. Jordan will review recent work on solar collectors and storage with an analysis of data from several new solar heated houses and the general building design implications. The conference, which will be followed by an open forum, will be held Tuesday, Nov. 17.

Other conferences which are to be held concurrently at the three-day meeting will include major problems on "Design Potential of Metal Curtain Walls," "Sandwich Panel Design Criteria," "Building Research, International" with related sessions on proposals for new or expanded building research, and "Modular Coordination." T. E. Werkema, industrial research analyst, Dow Chemical Co., will be the general conference chairman.

One of the speakers at the sandwich panel design session will be Elmer R. Queer, director, Engineering Experiment Dept., Pennsylvania State university. He will discuss heat transfer and moisture transmission.

Complete program and registration material for the conference may be obtained from Building Research Institute, National Academy of Sciences, 2101 Constitution Ave., N.W., Washington 25, D. C.

Salt Lake City Firm Suffers Fire Damage

SALT LAKE CITY—Damage reported as "considerable" was caused recently by a fire at Intermountain Refrigeration Co., owned by H. M. Russell.

The fire broke out early in the evening in the building at 633 S. West Temple.

Cause of the blaze was not immediately known. Three engine companies and an auxiliary truck and ladder company fought the blaze, which drew a large crowd.

CORRECTION

On page 10 of this issue there appears a story with picture on the Frigidaire lines for 1960. So far so good. But a harried editor (most of the staff was in Atlantic City) grabbed the wrong—and we do mean wrong—cutline for the picture. The lines which appear under the picture are for a Kelvinator two-door refrigerator-freezer. The press run was completed before the error was noted and time did not allow a re-run, so we offer this correction and our apologies. Correct cutline follows:

New concepts of convenience, styling elegance and utility are design keynotes of this ultra-modern new 13-cu. ft. Frigidaire refrigerator-freezer for 1960. Frost-Proof freezer at bottom never needs defrosting, regardless of how long it operates, according to the manufacturer. Freezer holds 150 lbs. of frozen food. New sculptured sheer look combines fashionable open-circle filigree and subtle metal sculpturing with clean, uncluttered styling lines so popular in today's kitchen.

Get your copy

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzalez—25¢ each.

Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

For full-flow filtration *plus* the lowest dew point you require—specify Davison PA-400.

For filtration of very low micron-sized contaminants plus moisture reduction to less than 10 ppm in seconds—specify Davison PA-400.

FULL FLOW FILTRATION

with Davison PA-400

For the same high no-bypass filtering efficiency achieved in the food industry with granular beds, plus a desiccant that cannot soften, swell or disintegrate—specify Davison PA-400.

In fact, for the highest filtering efficiency plus the best drying action you can buy—insist on Davison PA-400 in your dehydrators. Write Dept. 25211 for full information and technical bulletin.

Department 25211
W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
BALTIMORE 3, MARYLAND

MATHES vertical evaporator blower with plenum.

Mathes '60 Line--

(Concluded from Page 1, Col. 2)

ditioner which it said develops 23,900 B.t.u.h. (ARI 110-58) capacity.

These two models are available in hardwood cabinets in five finishes — mahogany, walnut, maple, blond oak, and ebonywhite. The cabinets have a "fabric weave" grille "designed to bring both beauty and long life."

Some 50 models of residential-commercial air conditioner equipment were presented ranging in capacity from 2 through 15 tons per individual condensing unit.

These are offered with a wide selection of evaporators for use with furnaces, plus an assortment of evaporator blower units in capacities of 2 through 20 tons for both free discharge air applications or with ductwork.

The heat pump line includes 45 basic models, many with newly engineered evaporator-blowers for cooling and heat pump application. These range in capacity from 2 through 5 tons, in a one piece "convertible" design, and in 15 and 20-ton units comprised of a completed assembly of three modules.

Robert B. Starnes, vice president-sales manager of Mathes, said the "extreme flexibility" makes possible installations with air discharging straight-through forward, or, by means of a right angle rotation of the blower motor assembly, the same blower unit can be installed to discharge the air upward while returning air from the original point.

An industrial-commercial 15-

MATHES Gold Medallion Super Custom room air conditioner.

ton single compressor, condensing unit for straight cooling air conditioner application, or fully automatic air-to-air, air source heat pump operations, was displayed.

Also shown, as a companion to the new condensing unit, was a newly-developed 15-ton vertical-evaporator blower designed for free air discharge in commercial or industrial applications.

This latter item was assembled in a heavy gauge steel housing with an enamel finish in beige and white. The front of the unit has a full width panel of hand-rubbed walnut.

Starnes said the company was putting on the market high tonnage equipment, in the range of hundreds of tons, through the use of multiple unit arrangements. Most any size equipment can be installed, regardless of total tonnage requirements with the selection of proper condensing units and evaporator blower units, he stated.

C. V. Hill Changes--

(Concluded from Page 1, Col. 5)

continue to play an active part in the Hill organization, it was pointed out. He is also a director of Savage Arms Corp., parent company of C. V. Hill & Co.

Doyle joined the Hill company in 1956 from the Copeland Refrigeration Corp. where he was vice president in charge of operations.

Blissfield Fire--

(Concluded from Page 1, Col. 2)

state before making a decision.

The fire swept through the plant on Sunday afternoon, Nov. 1. Cause of the blaze was not known immediately. Farver estimated that the loss would run in excess of $1 million.

When the flames were discovered, they had burned through the wooden roof in the central portion of the main building. Fanned by a 20-mile wind, they spread quickly, and the blazing roof fell into the assembly line.

No one was in the plant when the fire broke out. The local fire department and firemen from eight neighboring communities fought the blaze for nearly two hours before bringing it under control.

In reporting that limited operations were being started in temporary quarters, Farver commented that "We have a lot of good friends around here who are helping tide us over until we get back in operation."

Farver said the plant floor space totaled 85,000 sq. ft. The original part of the plant, containing 10,000 sq. ft., was built in 1946. The size has been increased periodically.

Silvercraft Tower To Be Continued

LOUISVILLE, Ky. — Metals Service Co., Inc., which recently purchased the patents and tools of Silvercraft, Inc., will continue the manufacturing and marketing of the Silvercraft cooling tower, according to E. B. Tucker, Metals Service president.

As reported in the Sept. 21 issue of the NEWS, Silvercraft, Inc. has been dissolved. Tucker emphasized that "the Silvercraft cooling tower will be continued."

DRAFTING ROOM SUPERVISOR

Man with engineering or tooling background to head up a 20 man drafting and print room organization. Must be familiar with drafting systems, have supervisory ability, and be able to expand department to match company growth.

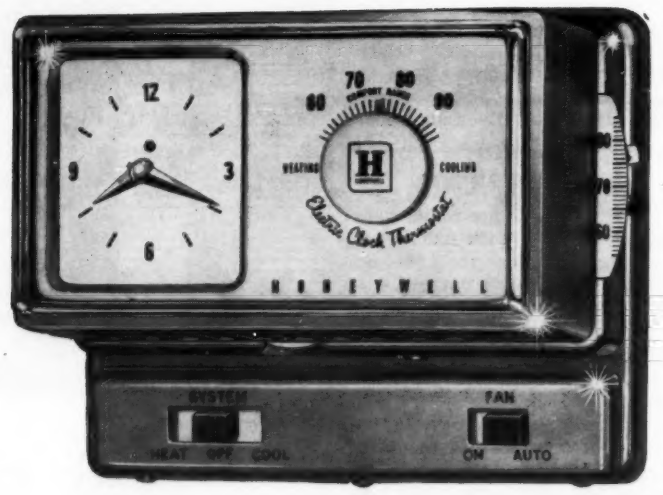
All replies held in strict confidence. Our employees know of this ad.

Submit complete resume and home phone with first letter, or contact W. A. Giddings.

AMANA REFRIGERATION, INC.
AMANA, IOWA

Pave the way for future business!

INSTALL HONEYWELL HEATING— ON EVERY



T861 Heating-Cooling Thermostat with Q426 sub-base. World's finest electric clock heating-cooling thermostat. Automatically turns heating or cooling up or down in the morning, again at night. This is the answer for customers who want the ultimate in year-round comfort, convenience and economical operation.

These thermostats are a constant reminder to your customers that they can easily convert later to year-round air conditioning

Naturally you're going to sell complete year-around air conditioning whenever possible. But for those who can't afford year-round air conditioning right away, one of these Honeywell Heating-Cooling Thermostats offers definite advantages. Point out to your customers how easily they can convert—at a later date—to year-round air conditioning. And with the thermostat already properly installed, for both heating *and* air conditioning, your future installation is easier, too.

You benefit many ways when you handle these dual-purpose Honeywell heating-cooling thermostats. You have easier installation, simplified inventories, a training school for your crew—*plus* really fast help when you need it. Honeywell backs up all its products with prompt, efficient, nation-wide service—instantly available from any one of Honeywell's 112 sales-service offices. There's one near you.

For information about Honeywell's complete line of control systems for heating and cooling, call your nearest Honeywell office. Or write: Minneapolis-Honeywell, Dept. AN-11-94, Minneapolis 8, Minn.

Honeywell

First in Control

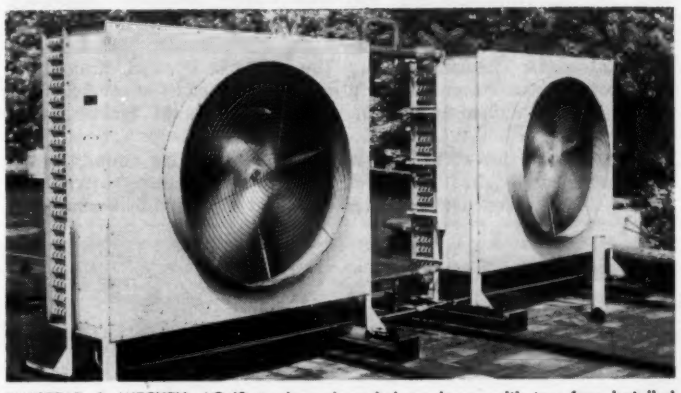
Give Better Process Control

Air-Cooled Condensers Reduce Shutdowns for Lithographer In Area with Poor Water

CANTON, Ohio — An Ohio printing firm, previously plagued by unusually bad water conditions and consequent failure of the water-cooled condensing system for its air conditioning unit, has enjoyed maintenance-free service for more than two years after converting to an air-cooled condenser, it was reported recently.

The firm, Seiple Lithograph Co. here, specializes in four-color process printing, including covers for many national publications.

"The four-color work represents 99% of our business, and we stake our reputation on its consistently high quality," says President Robert N. Seiple.



HALSTEAD & MITCHELL AC-40 tandem air-cooled condenser with two fans installed at Seiple Lithograph Co., Canton, Ohio, has given trouble-free service since installation in April, 1957. Second fan runs only on extremely hot days, while in winter both fans are off 90% of the time.

"Since this presents a technical register problem we must maintain the most exacting degree of temperature and humidity control in our plant. Otherwise, the printing is thrown out of register and must be scrapped."

This was the problem confronting Seiple Lithograph when the firm approached Associated Cooling Co., Canton, in April, 1957.

Five years earlier, the printing company had installed a 25-ton package air conditioning system with a cooling tower. Unusually poor water conditions in the Canton area caused excessive scaling, lime, and algae in the tower, resulting in costly production downtime and high maintenance costs.

"We were being forced to scrap in-process material because of service interruptions," Seiple says. "In addition, servicing costs of the cooling tower and water-cooled condenser averaged $325 a year."

Because of the unusual water problem, Associated Cooling recommended a Halstead & Mitchell air-cooled condenser.

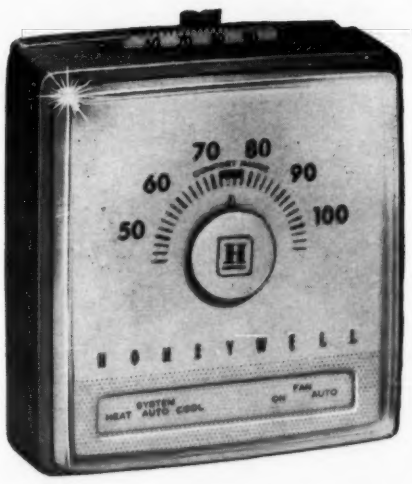
"Since then," Seiple says, "we not only have been able to maintain better process control and a higher-quality printed product, but we licked the problem of high maintenance costs and also experience better wintertime operation of the air conditioning system."

The condenser installed at Seiple Lithograph is an AC-40 tandem unit with two fans. One fan is set to cut in at 120-lb. pressure while the second, which runs only on extremely hot days (95° dry bulb) is set for 135-lb. pressure. In the winter both fans are off 90% of the time.

In addition to using a standard wintertime control, a solenoid valve is installed in the discharge line of the compressor with a safety by-pass. The valve is set to open at 90-lb. pressure, permitting the hot gas to flow to the air-cooled condenser.

The installation thus provides for fully automatic operation in all seasons.

COOLING THERMOSTATS HEATING INSTALLATION!



T870 Heating-Cooling Thermostat. This new deluxe heating-cooling thermostat gives the convenience and economy of completely automatic changeover between heating and cooling. Six models, seven sub-bases give up to 42 control combinations. Easy installation. Dust-free mercury switches. Handsome styling.

T87 Heating-Cooling Thermostat. Standard residential heating-cooling thermostat. Gives semi-automatic changeover between heating and cooling. 12 matching Q405 sub-bases provide the most flexible control combinations available. Features the world's most popular styling, with decorator cover, dust-free mercury switch.

IDEA: Hang one of..... these free cards on each thermostat installation!

It quickly explains to your customer the advantages of having a heating-cooling thermostat on their "heating only" installation. Sells customer on ease of converting later to year-round air conditioning. Provides a place for your name and address, so they call *you* for their needs.

MAIL COUPON FOR FREE THERMOSTAT HANGER CARDS

MINNEAPOLIS-HONEYWELL
Department AN-11-94
Minneapolis 8, Minnesota

Please Send Me ☐ 10 ☐ 25 ☐ 50 free thermostat hanger cards.

*Firm Name*_____

*Your Name*_____ *Title*_____

*Address*_____

*City*_____ *Zone*_____ *State*_____

In So. Calif.

Smog Control Equipment Becomes Running Mate To Air Conditioning

LOS ANGELES—Today, on jobs in southern California, smog control equipment has become a natural running mate to air conditioning equipment, according to Irvin Secord, sales manager, Drayer-Hanson.

Secord cited the firm's recent supplying of unitary air conditioning equipment to the U. S. Dept. of Agriculture, Fruit & Vegetable Laboratory in Pasadena.

An auxiliary activated carbon filter setup was called for to filter the ozone content from the famed Rose Bowl City—said to be at record highs because of U. S. Army tests on rubber products.

In Beverly Hills, where the six-story office landmark building owned by the estate of Louis B. Mayer is now being converted to year-round air conditioning, smog will be entirely eliminated.

"Backing D-H floor-mounted room-by-room console type air conditioners in each office and suite will be activated carbon filters to do the job of total smog black-out," it was stated.

Secord also noted that when Pacific Mutual building here installed a 1,000 individual zoned system a couple of years back, complete smog control was called for, using an activated charcoal filter system specially designed by Burke Engineering Co.

Twenty-five Drayer fan-coil air handling units conditioned smaller areas. Four roof-mounted built-up systems utilized D-H cooling coils. The smog elimination consisted of five section filter system with throwaway media, and two rows of activated charcoal.

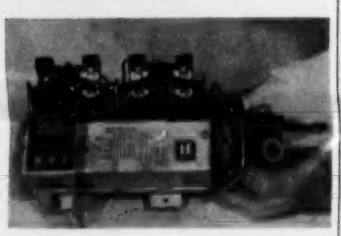
NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

M-H Offers Several New Control Items for Heating, Cooling

"WEATHER Station" control center introduced by Honeywell for electric heat systems permits central control of five rooms or areas besides showing indoor and outdoor conditions.

LOW voltage control system (left) for electric heat involves thermostat and relay. New high limit control (right) for electric baseboard uses capillary, manual reset.

LINE voltage thermostat (left) has been redesigned. New oil burner primary control (right) operates at 25° lower temperatures.



CONTROL centers for central residential air conditioners use combination screw and quick-connect terminals.

Major Breakthrough 'Permits Low Voltage Control of Electric Heat'

MINNEAPOLIS—Several new control items for heating and air conditioning, including what is claimed to be a major "breakthrough" permitting low voltage control of electric heat, have been introduced by Minneapolis-Honeywell Regulator Co.

The new low voltage temperature control system involves a wall-mounted round thermostat and a cycling relay that may be located remotely or within a baseboard or wall unit.

This two-piece system is said to overcome the problem found with line voltage control systems in which variations in electrical loads cause temperature swings or shifting of control points, according to H. C. Carlsen, Jr., market manager.

The thermostat is available in a positive "off" model, and the relay is offered in two models, one featuring switching of two loads from one thermostat; the second may be used with two thermostats to control two separate loads.

Introduced also for electric heat applications are such items as a "Weather Station" integrated comfort control center and weather information panel, a new limit control for electric baseboard, and a redesigned line voltage thermostat.

Other new Honeywell products include a redesigned control panel for 2 and 3-ton central residential air conditioners, a residential oil burner primary control, a hydronic zone valve, and two thermostats for use with indoor-outdoor residential temperature control, one providing automatic heating-cooling switchover; the other being a semiautomatic day-night switchback.

Designed for use with the low voltage electric heat control system, the Weather Station permits central control of temperature in five rooms or areas. It has also dials showing indoor temperature and humidity, outdoor temperature, barometric pressure, and includes a clock for automatic night setback.

New limit control for electric baseboard features capillary tubing which will detect any high temperature point along the entire baseboard, thus eliminating the need for several limit controls. Manual reset is provided.

Residential air conditioning control panels being introduced are said to provide a complete system for controlling condenser fan, compressor, and evaporator fan. Combination screw and quick-connect terminals are used for line voltage wiring. If desired by an equipment manufacturer, the panel and pressure control may be installed at different points.

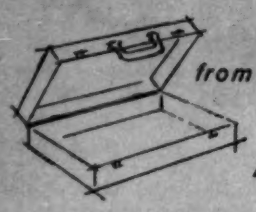
Operation at a temperature 25° F. below former models is the major feature claimed for Honeywell's new oil burner primary control. This is said to be accomplished by a new transformer design and exposed relay coil which dissipate heat more rapidly.

SEND FOR REPRINTS

"ELECTRICAL CHARACTERISTICS OF PACKAGED AIR CONDITIONING UNITS."

Only 25¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.



from the case of the A. O. Smith Motor Man . . .

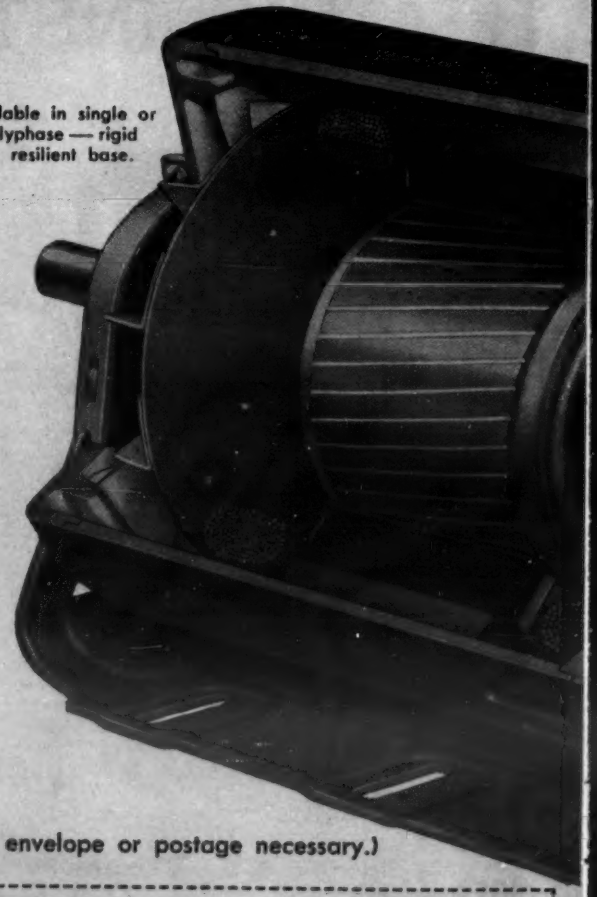
A MOTOR THAT SET INDUSTRY STANDARDS:

LOOKING AHEAD FOR NEW JOBS

Here's a motor with ambitions! Sealed-capsule fractional-hp motors — designed originally to solve the problems encountered in the air-conditioning and pumping industries. Consider their performance qualifications — you'll see why they've only scratched the surface . . . why they'd be ideal for such equipment as compressors, machine and woodworking tools, materials handling equipment, etc.

Qualifications? For one thing, sealed-capsule design (end-mounting, end-sealing of switch, actuator, thermostat and terminal board) has eliminated the biggest cause of single-phase fractional-hp motor failure. It's easy to see why these motors keep on the job under the most severe working conditions.

Unique installation flexibility has also resulted from this functional component grouping. Ball bearings and closer bearing centers assure minimum noise and shaft play . . . permit mounting anywhere in any position. Air is practically silenced through a unique ventilation design . . . magnetic noises are reduced to absolute minimum by special machining and assembly processes. Let us put one on your equipment. Compare it with sleeve-bearing motors. For complete data, please use the handy coupon below.



Available in single or polyphase — rigid or resilient base.

(Cut on dotted line, fold, staple and mail. No envelope or postage necessary.)

☐ Please send me more comprehensive details and application data on the A. O. Smith line of fractional-hp motors — 1/3 to 2 hp — that feature sealed-capsule design.

☐ I'd like to test your sealed-capsule motor.

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Tipp City, Ohio

For August, Reports OHI

Central Oil Heating Unit Sales Up 14%

NEW YORK CITY — Popularity of oil heat, as indicated by sales of central heating units, continues to increase, according to the Oil Heat Institute of America's Market Research Dept., which reports factory shipments in August of some central heating units up as high as 45% over August, 1958.

Combined figures for oil-fired boilers, warm air oil-fired furnaces, and oil burners sold separately, including both vertical and horizontal rotary burners as well as high and low-pressure gun-type, show an increase in sales for the month of August of 14% over August, 1958. An increase of 9% is reported for cumulative figures for the first eight months of 1959.

Factory assembled oil-fired boiler-burner units head the list in sales percentage increase over last year with a gain of 45% reported by the OHI for the month of August. The first eight-month cumulative increase was 26%, and the OHI estimates that over 10,000 boilers, not included in the report, were equipped with oil burners at the dealer level.

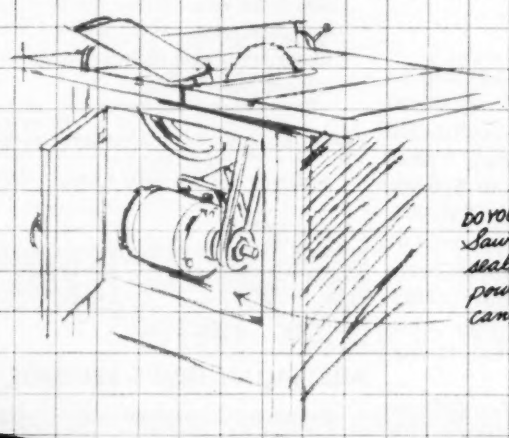
Sales of warm air oil-fired units, exclusive of wall and floor furnaces, for January through August showed an increase of 2% with, however, little change for August. The August, 1959 figure for shipments of oil-fired warm air furnaces amounted to 35,289 units compared with 35,116 units for August, 1958.

Sales of burners as replacements for oil burners or for conversion installations for plants formerly burning other fuels were up 22% over 1958 for August, with the cumulative figure for 1959 topping that of 1958 by 13%.

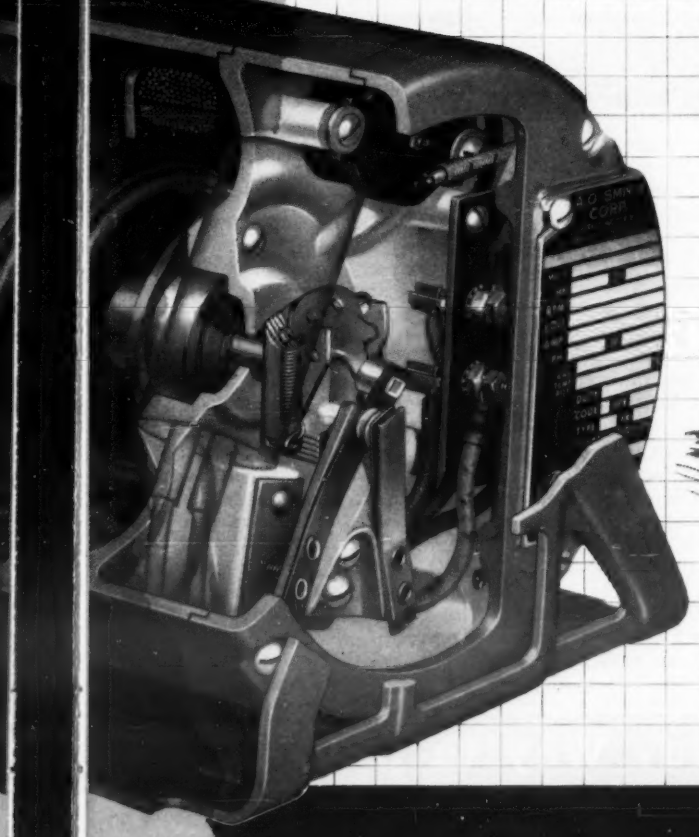
Price Piping Has Low Bid

ASHEVILLE, N. C. — Price Piping here was the apparent low bidder for the heating, ventilating, and air conditioning contract on the proposed new Asheville airport terminal building with a reported bid of $102,000.

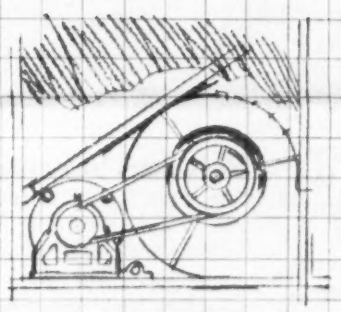
Scan the drawings below for ideas on how the sealed-capsule design can work into your plans

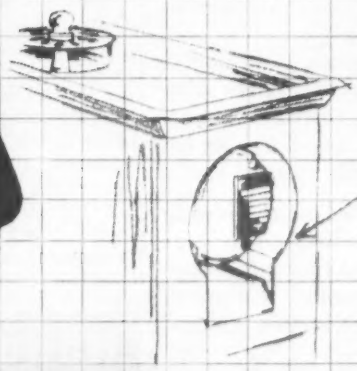


DO YOU HAVE A MOTOR CONTAMINATION PROBLEM? Sawdust and other foreign matter is sealed out of motor end-capsule on this powersaw application. Ventilating air cannot contaminate vital parts.

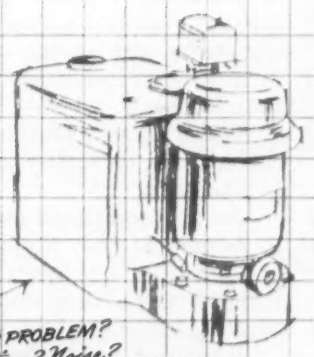


IS SPACE A PROBLEM? On this air-conditioning unit, absence of externally mounted capacitor (doghouse) permits installation in tight quarters without damage. Has eye appeal too.





IS EASE OF MAINTENANCE A PROBLEM? End-plate of sealed-capsule motor shields all functional parts . . . is easily removed for inspection in extremely limited areas as on this meat-cutting machine.



WHAT IS YOUR PROBLEM? Contamination? Noise? Maintenance? Appearance? Thrust? Space? The A.O. Smith sealed capsule motor was designed around just such "specs." Why not try it for your application?

Truly functional component grouping. Switch, actuator, capacitor, thermostat, and terminal board are all conveniently end-mounted . . . all completely protected against contamination and mechanical damage.

Note adjustable starting switch! On every A. O. Smith single-phase motor, switch is adjusted after assembly by turning a self-locking screw to achieve a pre-set clearance between the switch button and actuator. This assures proper contact alignment and positive switching action . . . guarantees maximum life for every motor.

Hospital Installs Radiant Heating In Intensive Treatment Bldg.

MIDDLETOWN, Conn.—Radiant heating is a feature of the new $4½ million Connecticut State Hospital's intensive treatment building here.

Other than a few baseboard areas, the entire four-story treatment building, including basement, is radiant heated with 93,000 ft. of 1-in. diameter 4-D wrought iron pipe coils. Hot water is the heating medium.

The system operates from either a room air thermostat or an outdoor bulb. Hot water is pumped by an Aurora circulator with a capacity of 200 to 270 gpm against a 30-ft. head. The 16-zone radiant heating system was designed to meet minimum outdoor temperatures of 0°F.

In addition to the 100 tons of 4-D wrought iron pipe specified for radiant heating, including risers, 10 tons were used for small waste lines 1½-in. diameter and under, and also for condensate lines.

Walter Crabtree of Hartford, Conn., was architect for the project. The radiant heating system was designed by John Legnos & Associates, Hartford. The general contractor was Baltimore Contractors, Inc., and the installation was handled by McCory & Marren, West Hartford. A. M. Byers Co., Pittsburgh, supplied the 4-D corrosion resistant wrought iron pipe.

Ralph L. Reiley Named To Georgia Board

ATLANTA — Gov. Ernest Vandiver has appointed Ralph L. Reiley of Savannah as a member of the State Board of Warm Air Heating Contractors. He succeeds W. Lee Mingledorff, Jr., also of Savannah, who resigned.

Gas-Fired Boiler Sales Up 23.4%

CHICAGO — The Plumbing-Heating-Cooling Information Bureau reported that sales of gas-fired boilers for the first seven months of 1959 totaled 64,900, a gain of 23.4% compared with the 52,600 sold in the corresponding period of 1958.

Death Notices

YOUNGSTOWN, Ohio—John H. Baum, Sr., 63, president of J. H. Baum Heating Co. and Sheet Metal Mfg. Co., died of a heart attack recently at his home.

He is said to have installed the first gas-fired furnace for residential heating in the Youngstown district. He was a past president of both the Mahoning Valley Heating Association and the heating contractors Association.

* * *

DUNN, N. C.—F. N. McLamb, 67, president of McLamb Supply Co., heating, plumbing, and air conditioning contractor, died recently in Betsy Johnson Memorial hospital here.

They'll Do It Every Time

by

Jimmy Hatlo

DINGLE DELL MOTEL
NO VACANCY
I DON'T CARE HOW OFTEN YOU'VE BEEN HERE—CAN'T YOU READ? NO VACANCY!
TELL THE PEST TO SCRAM!
OFFICE
URSATZ CONFETTI CO.
SUMMER··· KEISTER, THE TRAVELING SALESMAN, CAN'T GET A KIND WORD OUT OF THE MOTEL MOGUL, LET ALONE A PLACE TO SLEEP···
BUT COMES IT FALL AND THE SLACK SEASON·· HE'S WELCOMED LIKE A PENNANT IN DODGERTOWN!
DINGLE DELL MOTEL
VACANCY AND HOW!
HAIL, HONORED GUEST!
MY DEAR SIR··· YOUR SLIGHTEST WISH IS OUR COMMAND!
ROLL OUT THE CARPET
HAPPY BIRTH-DAY TO YOU
URSATZ CONFETTI CO.
EL RED
JIMMY HATLO
Thanx AND A TIP OF THE HATLO HAT TO A. BOBBE, 3311 HARVEY ST., MADISON 5, WISC.
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10-3

You Don't See Insulation But You Need It

INSULATION is among the least glamorous components of air conditioned homes and larger buildings.

You don't see it, feel it, taste it, touch it, or hear much about it. Hence the vast majority of homeowners and industrial air conditioning buyers seldom is fully aware of its importance.

(In that connection, a leading sales executive has this framed motto on the wall behind his desk: "To the man who's never heard of you, you don't exist.")

We can't blame the insulation producers for this situation. Realizing the publicity limitations of a hidden product, hitherto they've advertised chiefly to random purchasing agents and engineers.

To be sure, they all realize how much extra efficiency good insulation lends to refrigerators, freezers, ranges, and certain types of air conditioners.

But insulation promotion men have been stymied by difficulty in proving these operating cost savings to consumers.

(Old-time iceboxes were insulated by "Michigan air" in consequence, it might be footnoted.)

At this moment INSULATION at long last does enjoy an opportunity to toot its own horn. New home builders who desire air conditioning are the target for this honest ballyhoo.

Insulation suppliers in good conscience can help young couples save money on honeymoon homes, and still be progressive. Here is the proposition:

(1) Nearly everybody wants air conditioning;

(2) Few homeowners can afford it (they think);

(3) Insulation can bridge the gap.

Sound information on insulation, based on studies by the U. S. Bureau of Standards and Pennsylvania State university, presently is available. Those data reveal that insulation cuts costs of home heating and cooling remarkably.

Furthermore, Owens-Corning Fiberglas researchers declare that a well insulated 1,200 sq. ft. house can be comfort-acclimated for a round figure of $120 a year. Prices of these studied homes range from $10,000 to $40,000 (with the majority in the $15,000-$20,000 group).

Average annual operating costs were $139.89 for year around heating and cooling. NOW all-year air conditioning has been proved economical, thanks to these insulation-in-practice revelations.

To save money on an air conditioned home, 6 in. of insulation are required for attic floor and ceiling; 3 in. in the walls, and 2 in. around foundation walls or slab floors in the North Central region and in New England.

Midwestern suggestions are equivalent. In the South, extra insulation is recommended for the ceiling.

Directional pointing of an air conditioned home is important, too.

Eastern and western windows, unless they are shaded by trees or over-hanging eaves, should be avoided. Southern exposure windows should be over-hung to take advantage of tree shade in summer.

Attic and roof ventilation also helps.

Air circulation in the attic assists summer cooling and reduces a furnace's winter load, because moisture is a heavy burden for any type of air conditioning system.

Insulationeers recommend double glazing or storm sash on all windows. On large areas of glass it is suggested that not removing storm sash during summer will result in a 15% saving from protection against radiated heat.

Tinted glass additionally reduces air conditioning operating cost, in case anyone is interested.

An air conditioned home built according to these ideas truly is economical to operate.

Owners of a properly insulated 1,200 sq. ft. house will save at least an annual $25 on heating, $43 on cooling, and probably more.

Insulation to the fore!

At his best, the business leader requires a high level of skill in communication. The ability to write well and speak well is the most important vocational asset of all. It is indeed so important that if possessed by an accountant or personnel manager, there's a strong likelihood that he is shortly to be promoted into another post and profession.

The needed skills of my businessmen are best developed in school and in college by the study of the liberal arts—and by continuous application to them thereafter. — former SENATOR BENTON.

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AIR CONDITIONING HEATING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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OFF THE CHEST

AUSTRALIAN FIRM'S RECORDS CONFIRM EXPORT STUDY

Parsons & Robertson Ltd.
Adelaide, South Australia

Editor:

I was very interested in your article titled "Kelvinator's Story of Export Progress." In that article it is mentioned that Kelvinators were first shipped abroad in 1923, and that a few installations were also made in Australia the same year.

My company, which was then headed by my late father, F. Lancelot Parsons, claims to be the first company to import automatic low pressure refrigeration into Australia.

As proof of this, I have looked up our old records and find that our initial order on the Kelvinator Sales Corp. of Detroit was 13th November, 1923, which resulted in our receiving, on 13th February, 1924, two only 1420 Kelvinators complete with ¼-hp. 110/220-volt, 50-cycle, A.C. motors; one only model 06 Kelvinator; one only model 610 Kelvinator; one only model 1014 Kelvinator; one only model 2030 and one only model 3040.

We represented Kelvinator for a year or so and then changed over to Frigidaire because we had represented the Delco Light Co. for a considerable number of years, and they were looking for importers in this territory.

We continued representing the Frigidaire Corp. until imports from America were completely banned in approximately 1930, when we became distributors for Coldstream refrigerators, whom we represented from that time until 1956.

At that time we were offered the Sole Distributorship in South Australia for the Leonard Products as manufactured by Kelvinator Australia Limited, and we are proud to have represented them since that time.

In closing I would assure you that your Journal is read very interestedly by many in this company.

J. LANGDON PARSONS,
Managing Director

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Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING, HEATING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 53 issues (U.S. and Canada). Foreign: $10 per year.

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Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

TV quiz show winners did the same thing for students.

"Eggheads," all of a sudden, become not only respected but fashionable. The Democratic Party took Adlai Stevenson out of mothballs . . . kids began doing their homework. . . .

Now? Disillusionment. The object lesson for our children? To get rich, be dishonest. Accept bribes.

There's a sucker born every minute, so take advantage of him. Homework is for the birds. Crime pays.

For years parents have been protesting futilely about the steady diet of crime, shoot-em-up Westerns, etc., on television.

So have law enforcement officers (from local police to J. Edgar Hoover).

The connection between TV's sanctification of criminality and the fearsome rise in brutal juvenile delinquency has been pinpointed from New York City to Three Trees, Wyoming.

But there's not a damned thing parents, educators, J. Edgar Hoover, or the Constable of Three Trees can do about it.

Reason: television is *free circulation* in essence. It is controlled entirely by advertisers, because viewers don't pay for TV home delivery.

A *free press* is the exact opposite of "free circulation." Subscribers have a choice. Since they *pay* for the newspapers *they* read, they are in the saddle.

If *paid subscribers* disapprove of a publication, they won't buy it—whereupon it goes out of existence.

Under a "free circulation" policy, defenseless citizens have no choice. A publication or TV program comes to them whether they want it or like it or not. A few advertisers control what thousands or millions read or hear or see.

These all-powerful and often cynical advertisers play "the numbers game" (the most of the lowest for the cheapest).

Worried minorities—such as alarmed parents, law enforcement officers, educators and the educated, people of goodwill . . . are minorities. Their protests are brushed aside, *buried.*

No wonder "Madison Avenue" is in such ill repute.

American democracy is based on the twin concepts of minority rights and freedom of choice.

The "controlled circulation" method—as often embodied so flagrantly and viciously and fraudulently by television programming—is a reversion to Fascism.

Minorities have no rights and The People have no Choice under this wrong-way method.

There's an immensely important principle involved here. Surely every reader of this polemic can spell it out for himself.

'Big Daddy' Ireland

Can anybody in our industry come close to this record?

Tom Ireland, of Bundy Tubing, has sired a 13-pound baby.

Friends call him "Big Daddy" now.

Quotes of the Week

Much of what we mistakenly call "progress" is merely the substitution of a complicated nuisance for a simple nuisance. —SYDNEY J. HARRIS.

All you have to do to get the world to beat a path to your door is decide that you want to take a nap.—O. A. BATTISTA.

The only workable rule of life in this hair-trigger world is to lick one problem at a time—in the fairest, soundest way.—*Bankers Bulletin.*

The Rain In Spain?

Spanish housewives are delighted with the supermarkets recently unveiled in Barcelona and Madrid, NEWS subscribers over there report.

Furthermore, an additional 2,000 Ispana supermarkets will be established in the next two years, according to our good friends living in the Iberian Peninsula.

Cleanliness, glamorous presentation of frozen fish and vegetables (plus a soothing background of music), combine to make the Spanish housewife feel that Dictator Franco has done a great job with these supermarkets.

Franco's primary aim is to keep prices down, of course. By inaugurating supermarkets he can fight efforts of local speculators to boost living costs upward.

At the same time, reformation of Spain's antiquated food retailing system has been encouraged by Franco. (It should be noted parenthetically that American commercial refrigeration salesmen have made this policy effective.)

Frozen foods in themselves will help Spain better to enjoy large quantities of vegetables, fish, and meats—which otherwise might be wasted in torrid summer months through inadequate refrigeration.

Within recent years middle-class Spanish households have purchased domestic refrigerators at an accelerating pace. Relatively few lower income families have them now, but they're *interested!*

Middle and upper-class households, like their poorer brethren, previously tended to buy food for just one day at a time. Today, however, "frigs" and freezers are appearing throughout Hispaniola—and so perishable food can be stored.

An entire manner of living, therefore, is changing swiftly in Spain.

The white bean and the lentil, the salted codfish and the highly-seasoned sausage (foods easy to keep without refrigeration) are giving way to a better diet of fresh meat, fish, fruit, and vegetables.

Moreover the hamburger—in Spanish a "hamburgesa"—has become an established favorite recently. Likewise, sliced bacon.

That tantalizing breakfast aroma of bacon-and-eggs has captured Spanish imagination and desire at a rapid rate.

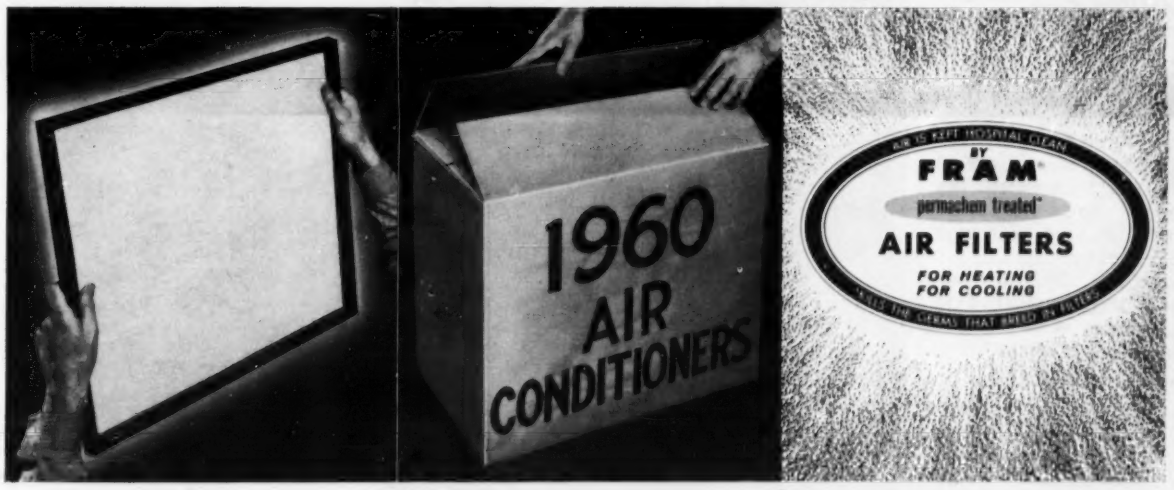
Refrigeration, of course, precedes and makes possible full realization of this New Era of More Healthful Living.

Commercial refrigeration in supermarkets is guiding Spain's re-entrance into "modern civilization.

Take a bow, American refrigeration *entrepreneurs!*

NOW... from **FRAM**®...

world leader in **filtration** ... the sensational new **Fram** permachem treated **Air Filters that make big profits for you!**



NEW **FRAM** permachem treated **AIR FILTERS**

Kill 99+% of the germs that breed in filters • Stop mold, mildew, musty filter odors • Hold up to 34% more dust in AFI test procedures • Exclusive anchor-locked frame cannot settle, vibrate, blow, or soak loose • In sizes for all forced air furnaces and air conditioners, also rolls and pads.

IMMEDIATE ACCEPTANCE BY ORIGINAL Equipment Manufacturers

Eleven leading manufacturers of air conditioning equipment have already selected FRAM permachem treated Air Filters for original equipment in their 1960 models. (Their names will be announced in December.) FRAM's sensational plus features will be promoted by these manufacturers in their sales and merchandising programs.

POWERFUL ADVERTISING FEATURES THIS SEAL

Big-space ads in national magazines including THE SATURDAY EVENING POST, newspapers, and radio are telling your customers about the advantages of FRAM permachem treated Air Filters. Merchandising aids featuring FRAM permachem treated Air Filters are being used by original equipment manufacturers and are available to you.

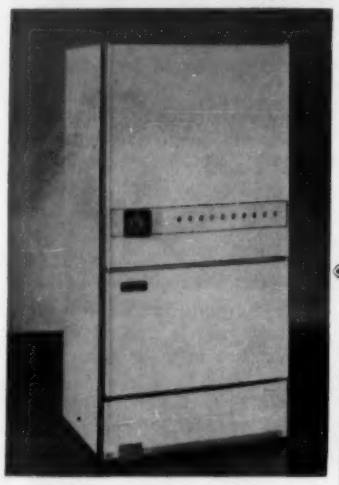
"You've never made **such profit** from air filters before," says Theodore F. Low, President of Sims Corporation, Providence. "You can't miss with Fram's profitable pricing policies, selective distribution, merchandising support, and Fram's famous money-back guarantee."

GET THE FACTS TODAY!

Write Dept. FAC, FRAM CORPORATION
Providence 16, Rhode Island

Despite Product Improvements

Frigidaire Holding Price Line on 1960 Products; None Higher, Some Lower Than '59



TWO-DOOR refrigerator-freezer introduced by Kelvinator for 1960 has a capacity of 13.1 cu. ft. Model K77M has an automatically-defrosting fresh food compartment with a 10.2-cu. ft. capacity, twin porcelain crispers and "package-pantry" for pre-packaged fruits and vegetables.

KEY BISCAYNE, Fla. — Frigidaire is "holding the price line" for 1960. Despite product improvements, prices have not been raised. In fact, several home freezer models will be offered at lower price tags than comparable 1959 pieces.

This enchanting Florida "key" (offshore islet) was the scene of a press conference attended by newspaper, magazine, and business publication editors from all over the nation.

Top Frigidaire and General Motors "brass" presented the new product lines, explained policy, and answered searching questions candidly.

Details on the 1960 room air conditioners were published in the Nov. 2 issue of the NEWS. Suggested retail prices are:

IMPERIAL MODELS

	Cooling Capacity	
AI-100M	8,000 B.t.u.h. (115 volt, 11.5 amp.)	$299.95
AI-100	10,000 B.t.u.h. (208-230 volts)	339.95
AIR-100	10,000 B.t.u.h. (Reverse cycle, 230 volt)	389.95
AI-150	14,100 B.t.u.h. (208-230 volts)	379.95
AI-200	16,500 B.t.u.h. (208-230 volts)	439.95

CUSTOM DELUXE MODELS

ACD-100L	6,000 B.t.u.h. (115 volt, 7.5 amp.)	259.95
ACD-100	8,000 B.t.u.h. (208-230 volts)	279.95
ACDR-100	8,000 B.t.u.h. (Reverse cycle, 230 volts)	314.95
ACD-120	12,100 B.t.u.h. (Lone Star, 208-230 volts)	329.95

DELUXE MODELS

AD-100L	6,000 B.t.u.h. (115 volt, 7.5 amp.)	259.95
AD-100M	7,800 B.t.u.h. (115 volt, 9.9 amp.)	279.95
AD-100	9,500 B.t.u.h. (208-230 volts)	314.95

Stylish new refrigerators and food freezers, which stress "Frost-Proof" freezing, were shown.

Emphasized was Frigidaire's new "sculptured sheer look." This design is described as "a blend of squared-up styling lines combined with a decorative touch of circled filigree, plus subtle metal sculpturing on doors and base panels."

Currently 14 new refrigerators, six upright freezers, and 11 electric ranges are being shown to Frigidaire dealers.

Most important advancement in 1960 refrigerators is the "Frost-Proof" freezing system which has been incorporated into four refrigerator-freezer models, together with two upright food freezers, it was stated.

Newest Frost-Proof unit is a 13-cu. ft., two-door Imperial model with freezer across the bottom. In addition, there is a 15-cu. ft., two-door Imperial Frost-Proof model with bottom freezer section, plus Imperial and Deluxe 13's, with full-width top freezers.

All the 1960 refrigerators are equipped with a new magnetic door seal. All models have new meat storage drawers which are claimed to keep meats fresh up to seven days. Also featured are newly-designed storage shelves "made of graceful, but sturdy aluminum rods, which not only are easier to clean but permit more effective air circulation and lighting."

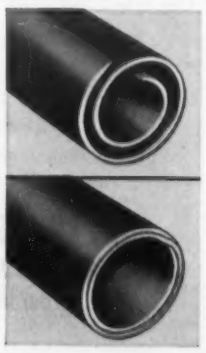
The new upright food freezers have the same "sculptured sheer look" of the 1960 refrigerator models, Frigidaire said. Freezer models range from 12 to 21 cu. ft. in size with capacities from 430 to 720 lbs. of frozen food. Five of the six upright models also are equipped with new magnetic door seals, and all but one have built-in door locks.

Suggested retail prices of the new refrigerators range from $199.95 to $699.95 and those of the freezers from $299.95 to $539.95.

Frigidaire's colors for 1960 range from Aztec copper and charcoal gray through turquoise, yellow, pink, and white. Refrigerators are available with right or left hinged doors. A white porcelain enamel exterior finish is optional on some refrigerator models.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

There's almost no limit to the things Bundy can mass-fabricate



Bundyweld is the original tubing double-walled from a single copper-plated *steel* strip, metallurgically bonded through 360° of wall contact for amazing strength, versatility.

Bundyweld is lightweight, uniformly smooth, easily fabricated. It's remarkably resistant to vibration fatigue; has unusually high bursting strength. Sizes up to ½" O.D.

Whether it's a complex shape, or just a simple bend, Bundy knows virtually no bounds when it comes to mass-fabricating steel tubing. You see, Bundy engineers are tubing specialists . . . backed by never-ending, ever-bending experience. And here are just a few of the benefits you will derive.

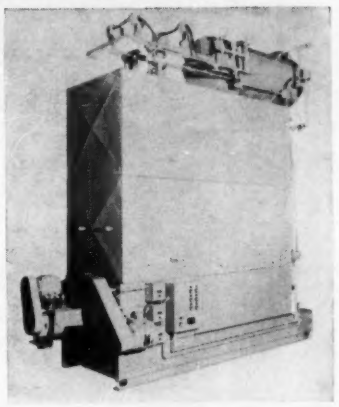
From a single strip of steel comes double-walled, copper-brazed Bundyweld® Tubing—leakproof by test—and the safety standard of the refrigeration industry. Unique beveled edges provide smooth inside and outside seams . . . no inside flash to be removed.

Whatever the stage of product development, Bundy designers can be called in for consultation and for suggestions of time- and money-saving modifications.

For low unit-cost and uniformly high quality, Bundy-designed fixtures and machines are geared to mass-fabricate parts to *your* specifications.

Got a tubing problem? Better see the leading producer in the refrigeration industry *first*! Write, wire, or phone Bundy Tubing Company, Detroit 14, Michigan, today.

Ice Maker Claims Higher Yield Per Cu. Ft.

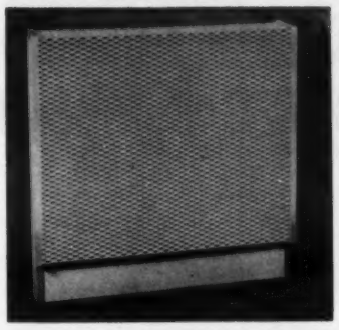


● A new "Krackice Maker" claimed to be capable of higher ice yield per cubic foot of space occupied and able to deliver large quantities of clear ice has been introduced by Kohlenberger Engineering Corp., Dept. AH&RN, 1600 Commonwealth Ave., Fullerton, Calif.

The manufacturer said no fine adjustments are necessary on the unit and the need for knives or scrapers to remove ice from plates has been eliminated. Models are available in 15, 30, 45, and 60-ton capacities.

Ice freezing plates are ASME coded, all steel, electrically welded, polished smooth for rapid ice removal, it was stated.

Vent Heater Available In 2 Sizes

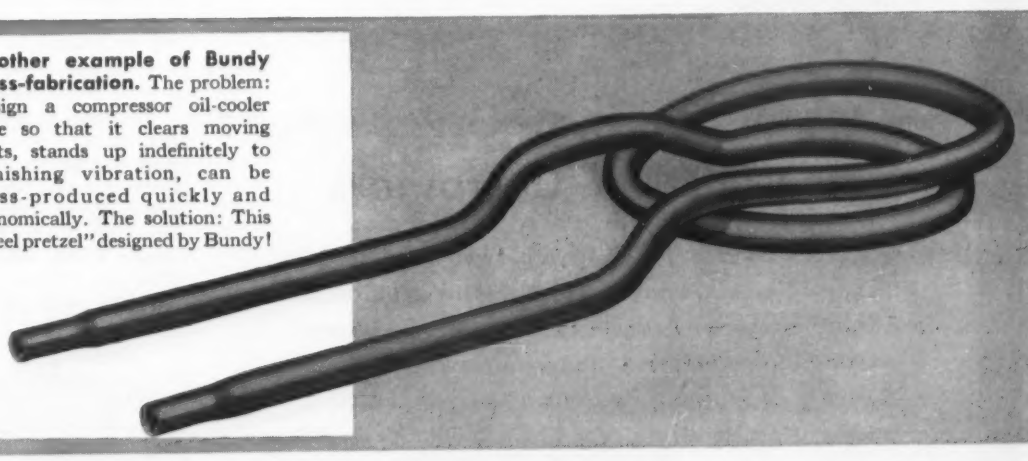


● Introduction of a new "Safti-Wall" vent heater with sealed combustion chamber and through-the-wall vent has been announced by Pioneer Mfg. Co., Dept. AHRN, 3131 San Fernando Rd., Los Angeles 65.

Available in two sizes with 28,000 or 33,000 B.t.u. input and with manual, semi-automatic, or automatic controls, the heaters are easy to install, the company stated, since the only structural work needed is to open a hole through an outside wall.

"Designed for installation flush with the floor or above the baseboard, and sized for under-window use, Safti-Wall heaters use outside air only for combustion and discharge all products of combustion to the outside through a specially designed draft-proof vent cap," it was explained.

Another example of Bundy mass-fabrication. The problem: Design a compressor oil-cooler tube so that it clears moving parts, stands up indefinitely to punishing vibration, can be mass-produced quickly and economically. The solution: This "steel pretzel" designed by Bundy!



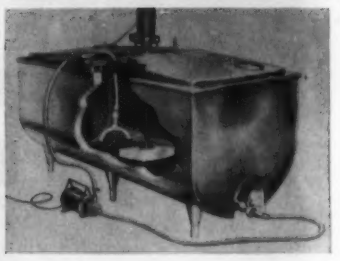
There's no substitute for the original

BUNDYWELD® TUBING

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, BRAZIL, ENGLAND, FRANCE, GERMANY, AND ITALY

BUNDY TUBING COMPANY • DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

What's New



'Inplace' Cleaner for Milk Coolers Bowed

● Introduction of a new "in-place" cleaner for bulk milk coolers has been announced by Sunset Equipment Co., Dept. AH&RN, P.O. Box 3536, St. Paul 1.

Called the "Spin-Clean," this machine is designed to make cooler cleaning easier and more efficient. There are five steps to the cleaning operation:

Pre-rinse tank with 120° to 130° water; drain rinsing water and put in 5 to 10 gals. of 130° to 140° water; add detergent; circulate water and detergent with Sunset cleaner for 12 to 15 minutes, then drain cooler; leave cleaner in position and rinse cooler with the cleaner just before milking.

The Spin-Clean is designed to comply with state and city health department requirements, the company said. The circulating pump, hoses, and fittings are made of nylon.

New 'Pacemaker' Furnaces Introduced

● A new line of "Pacemaker" forced air furnaces which will feature new exterior styling, color scheme, and major component improvements has been announced by the Payne Co., Dept. AH&RN, 855 Anaheim - Puente Rd., La Puente, Calif.

New features include a larger direct driver blower for more air volumes at lower blower speeds and an optional blower for higher capacity air delivery requirements, according to the company.

"Utilization of direct drive blowers in the full range of sizes provides a furnace only 51 in. tall, making it easily adaptable to basement installations, with optional return duct cabinet," the firm said. "Other features proven in the established 'Imperial' line have been further improved for use on the new Pacemaker series."

Liquid Flux Precludes Need for Precleaning

● A new general purpose liquid flux, developed by the Research Dept. of All-State Welding Alloys Co., Inc., Dept. AH&RN, White Plains, N. Y., is now available for use with all soft solders.

It is used on stainless steel, chrome, monel, copper, brass, cast iron, nickel, nickel silver, steel, galvanized, gold, sterling silver, bronze, coated steels—all except aluminum, magnesium, and die cast, according to the company.

"Duzall," the company claims, "eliminates precleaning of parts, removes surface oxides, and vastly expands the capillary action of all soft solders, even on deep joints and tough-to-solder applications. Duzall is non-acid and so eliminates acid fumes."

All-State packages Duzall in 4 oz. plastic containers with refillable dispenser top, and in regular plastic containers of ⅛ oz., 16 oz., and 1 gal. 32-oz. containers are glass.

4-Point Program Aids Workers, Output

Underground Air Conditioning, Heating Has Vital Role In B-52G Bomber Production

LA CROSSE, Wis. — An underground air conditioning and heating system is playing a vital role in the production of B-52G bombers, according to The Trane Co. here, which manufactured the equipment used in the system.

The system is located under a plant wing sealing area in the Boeing Airplane Co.'s Wichita, Kan., Div. It was designed by Boeing plant engineers as the solution to a difficult problem posed at the beginning of the B-52G program.

"The B-52G is a missile platform bomber for the Strategic Air Command," Trane pointed out. "It is distinguished from its predecessors by the fact that the 185-ft. integral wing is a fuel tank in itself. For this reason the wings have to be leakproof. Each rivet and bolt used in wing construction must be sealed over inside the wing with a specially-prepared plastic sealant.

"Boeing sealing crews would have to climb inside the major, 80-ft. wing sections, apply sealant, check for leaks, and then be able to cure the sealant rapidly before the wing can be joined to the fuselage.

"The fumes and heat generated by these operations would create practically unbearable conditions inside the wing. Therefore, it was necessary to provide a system capable not only of air conditioning each wing section but also providing water and heat.

Four-Point Plan

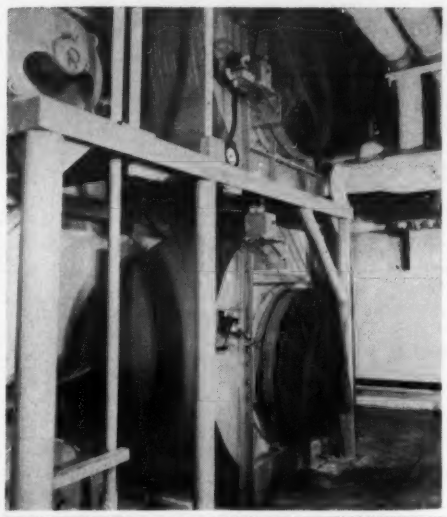
"Boeing plant engineers came up with a four-point plan that:

"1. Maintains comfortable temperatures (about 72° F.) inside the wing section while crews apply sealant, to insure maximum efficiency and employe safety.

"2. Provides constantly circulating outdoor air to eliminate toxic fumes given off by cleaning agents used in sealing and ammonia fumes employed in testing.

"3. Supplies ventilation for cleaning wing interiors after leak tests.

"4. Allows heating of individual sections and control of humidity in curing the plastic sealant after application. This demands temperatures up to 140° F., with humidity levels ranging from 1 to 100% (through use of steam)."



OUTDOOR air is driven through tunnels under the Boeing wing sealing area by two Trane Class III fans with a combined capacity of 80,000 c.f.m. Identical fans exhaust air from the tunnels after it has been used to ventilate the wing sections in production.

The area where the sealing and curing operation takes place is 90 by 300 ft. Ten of the major wing sections, or five pairs, are in various stages of sealing and curing there at all times.

Decided on Underground System of Tunnels

Boeing's plant engineering unit decided to install an under unit decided to install an underground system of tunnels, piping, and ducting with individual hookups and controls for each wing. Crews first excavated to an over-all depth of 4 ft., then dug 8-ft. deep tunnels on both sides of the hole's 300-ft. length.

The tunnel on one side connects to intake fans to draw in outdoor air. The 80-ft. lines feed off the tunnel, running parallel to each of the major wing sections. At the tunnel connection point each line has a combination unit for cooling or heating the incoming air. Heat transfer within these units is provided by Trane water coils.

Ten Master Control Units Above Surface

Outdoor air is driven through this tunnel by two Trane Class III fans at a rate of 80,000 c.f.m. (11½-in. static pressure). Heating or cooling of each wing section is regulated by ten master control units above the surface.

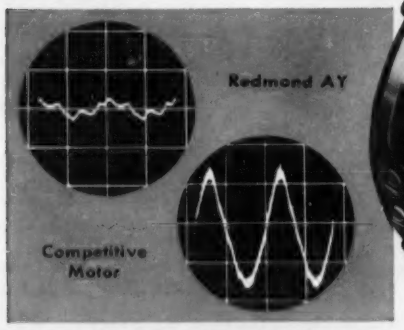
The other 300-ft. tunnel has five 80-ft. lines attached to it, each serving two wing sections. Contaminated air is continually drawn from the wing sections into the main tunnel by two Trane Class III exhaust fans. This air is then exhausted outside the plant high above rooftop level.

"Originally it was thought that it might be necessary to double the number of supply and exhaust fans and the heating and cooling coils," Trane noted. "However, the system has worked so well that Boeing engineers no longer feel that any increase is required."

In addition to heating, cooling, and exhaust lines laid into the area, water lines for each wing section were installed for cleaning purposes along with necessary sewage lines which

YOU CAN SEE THE DIFFERENCE

These actual photographs of the oscilloscope screen show the reduction of vibration in the blower when the Redmond Type AY MicroMotor is used. The photo at the left shows blower vibration with The Redmond AY; the one at the right shows vibration with a competitive motor.



YOU CAN HEAR THE DIFFERENCE

Place a mechanic's stethoscope on the end cap and you can easily hear the difference between the newly designed Redmond Type AY and motors of conventional design. Try it on a Redmond 1/6 hp—the noise level is about that of a 1/35 hp motor of conventional design.

QUIETEST

DIRECT DRIVE BLOWER MOTOR

Redmond TYPE AY

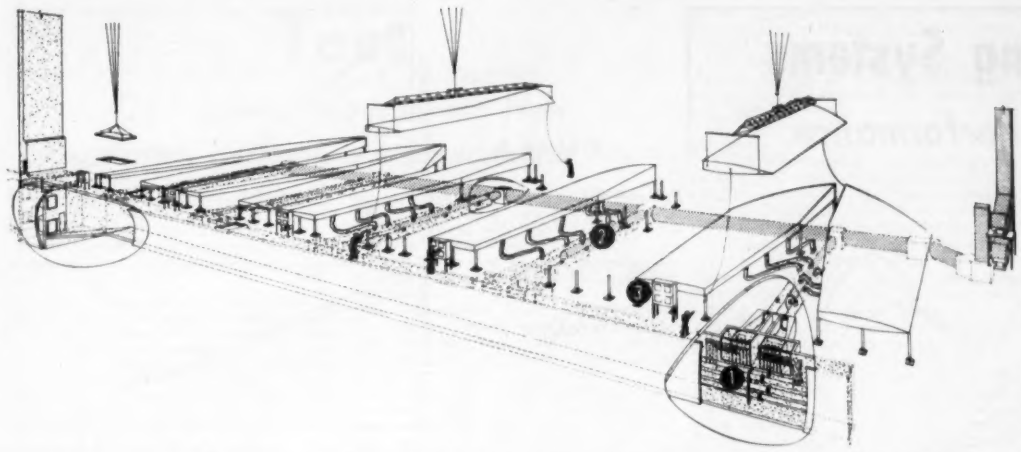
NEW DESIGN REDUCES BLOWER VIBRATION TO ONE-FIFTH THAT OF UNITS USING CONVENTIONAL SHADED-POLE MOTORS

The Motor That Gives You Satisfied Customers

When you replace direct drive blower motors with this new Redmond motor, you solve the problem of vibration noise—it reduces vibration on the blower housing to one-fifth that of units using conventional shaded-pole motors—cuts down what is the basic source of nearly all noise problems. The Type AY is designed and manufactured in every way to give years of whisper-quiet, trouble-free service—it is your guarantee of customer satisfaction.

Redmond DISTRIBUTORS DIVISION REDMOND COMPANY, INC., OWOSSO, MICHIGAN

See the Yellow Pages of Your Telephone Directory for Your Local Redmond Distributor



THIS ARTIST'S DRAWING shows the complex facility required for manufacture of wing sections for the new Strategic Air Command B-52G missile platform bomber at Boeing Airplane Co.'s Wichita, Kan. Div. The numbered areas are: (1) Piping for the water supply. Directly above the numeral are thermal units which heat or cool the water and air going into the system. (2) The two large intake ducts feeding in and the center duct which ties into the exhaust system. (3) Individual control panels for each wing station.

hook into an industrial waste water collection system.

After the sealing process and subsequent testing is completed, the sections are subjected to high temperatures for periods of up to eight hours for curing. This is a fraction of the time that would have been required by other proposed methods, according to the report.

After curing, the left and right wing sections are joined to a center section and the complete wing section is then moved into final assembly for joining with the fuselage of the eight-jet Strategic Air Command global bomber.

Last December a production model of the Boeing B-52G shattered three jet aircraft records. The missile platform bomber taking off at a record weight of 480,000 lbs., crisscrossed across the country for 18 hours and 18 minutes without refueling.

The plane flew more than 9,000 miles after take-off from McConnell Air Force Base at Wichita before returning almost a day later and touching down again on the Wichita runway.

The gross weight and the distance traveled without refueling are believed to be records for jet aircraft.

The flight, although record breaking, was made as a routine performance of the new bomber during a service test program before it was turned over to the Air Force for acceptance.

The air conditioning system, which helped to make the "wet-wing" type of construction possible, was designed by Boeing's Plant Engineering Dept. and installed by the company's Maintenance Dept.

Industrial Air Conditioning

'Total Air Conditioning, Smog Elimination' Is Requisite of USDA Laboratory System

PASADENA, Calif.—The U. S. Dept. of Agriculture's Fruit & Vegetable Laboratory, under Dr. E. A. Beavens here, is completing an addition to facilities at 263-S Chester Ave., which "keys to total air conditioning, and total elimination of smog," it was reported.

The research laboratories, according to Dr. Beavens, perform precise chemical composition studies on fruits and vegetable products which require constant temperatures in the various individual laboratory operations to offset the need to make manual temperature corrections at all times.

Newest installation is an oven room laboratory, where constant temperature ovens raise room temperature excessively but where temperature must not exceed 80° F. The spokesman for the Agriculture Dept. has indicated constant temperature is requisite for using such precision measuring equipment as micro-balances, ultra-violet and infrared spector readings.

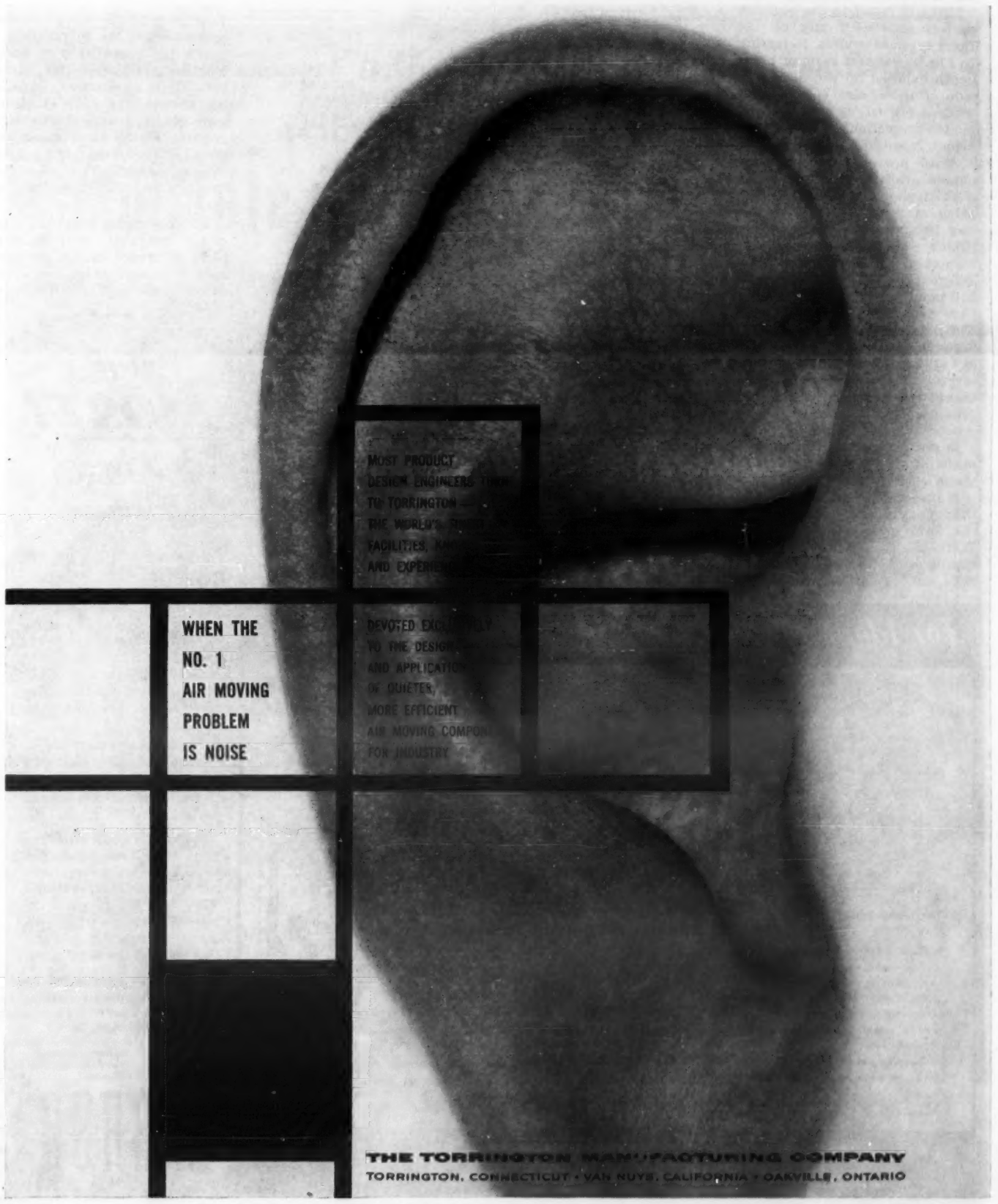
Selected to handle the cooling phase is a Drayer-Hanson HRC cabinet-type fan-coil-filter unit.

Dr. Beavens has indicated total smog elimination was requisite in this new facility. Because many operations at the laboratory are affected by the high ozone content in the Pasadena sector, it was decided to use activated carbon filters in conjunction with Drayer-Hanson units.

DOES YOUR APPLIANCE CARRY THIS Seal of Quality?

★ The motor used in this equipment is protected against overloads, low voltage, over-voltage with a Mighty Mite Thermal Protector ★

MECHANICAL INDUSTRIES PRODUCTION CO.
223 Ash Street • Akron, Ohio



Fundamentals of Air-Moving Systems

(4) How Orifices Affect Fan Performance

By L. C. Lindstrom,
Air Impeller Div., The Torrington Mfg. Co.

Editor's Note: This is the concluding article in a series that has run intermittently in the NEWS over the last several months. The Nov. 2 issue contained the opening article of this two-part section on "How Orifices Affect Fan Performance."

The axial position of the impeller in the orifice is the most critical factor affecting the performance of a propeller fan. In our continuing laboratory studies of orifices, we have found that there is a particular amount of impeller projection on the orifice discharge side which will result in the best fan performance with any of the three types of orifices. Referring to Fig. 1, the best ratio of blade depth exposed on the discharge side of the orifice (p) to total blade depth (d) is about 1:3—a blade projection through the orifice from 30 to 35%.

Static pressure and efficiency curves are given in Fig. 4 for a particular propeller fan operating at projections of 15, 33, and 50% through a sharp-edge orifice. The variation in performance characteristics with different fan projections through bell-mouth orifices is similar. For projections greater than 33%, the static pressures at lower flow rates (near shut off) in Fig. 4 are higher but drop off severely at low static pressures (near free flow). While the pressure curve for a 15% projection is higher than for 50%, it is not as high as for 33% in most of the range of higher static efficiencies.

It is evident also in Fig. 4 that peak static efficiency for the 33% projection is highest. While the peak for 15% projection is good, its efficiency curve falls off rapidly so that the specifier does not have as great a latitude as with the 33% projection in locating the operating point at a high static efficiency.

FIGURE 4

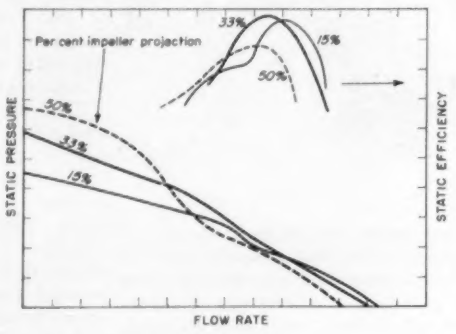
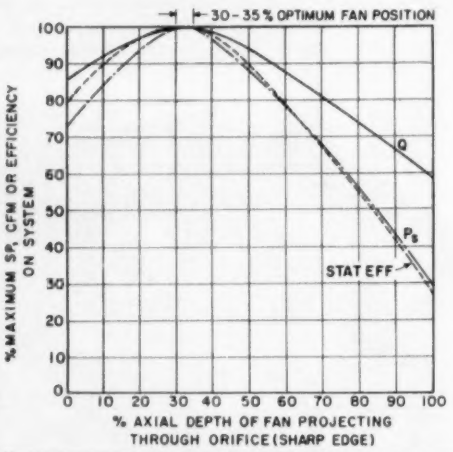


FIGURE 5


30-35% OPTIMUM FAN POSITION
% MAXIMUM SP, CFM OR EFFICIENCY ON SYSTEM
Q
P_s
STAT EFF
% AXIAL DEPTH OF FAN PROJECTING THROUGH ORIFICE (SHARP EDGE)

The extreme importance of impeller position is further demonstrated by the curves in Fig. 5. These curves give static pressure P_s, flow rate Q, and static efficiency as functions of the per cent projection of the impeller fan of Fig. 4 through a sharp-edge orifice. These operating characteristics are given as percentages of the maximum values they could have in the particular air flow system used in the test. These curves show how much a fan projection between 30 and 35% can mean in obtaining the best possible performance. Efficiency and pressure drop 20 and 25% respectively at zero projection.

As the fan itself is placed further through the orifice beyond 35% in the discharge direction, the intake conditions become extremely poor until at 100% projection—the fan completely out of the orifice—the static efficiency is about 30%, or less than one third of its maximum value in the system.

TYPE OF ORIFICE

Variations in the performance curves in Figs. 6, 7, and 8 show how each of the three types of orifices affect the operation of a particular propeller fan under identical conditions. All curves for static pressure, impeller horsepower, and static efficiency were obtained with the impeller running at the same speed and with the recommended 1.8% tip clearance and 30-35% projection through the discharge side of each orifice.

FIGURE 6

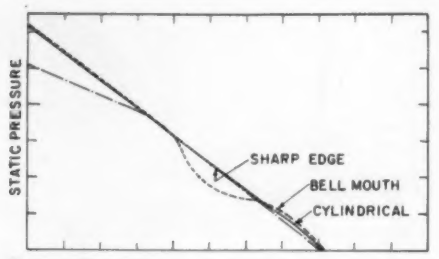


FIGURE 7

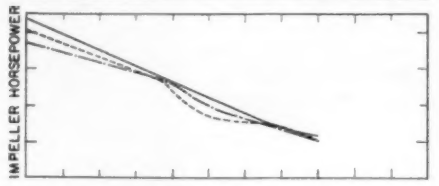
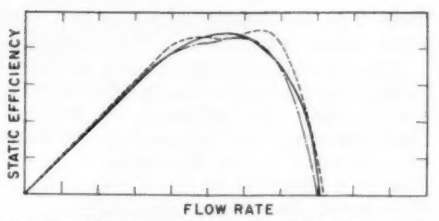


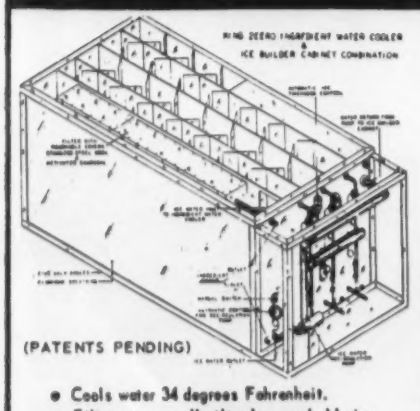
FIGURE 8



The curves in Figs. 6, 7, and 8 indicate that there is very little difference in fan performance with sharp-edge and cylindrical orifices in the range of high static efficiency. However, the sharp-edge orifice costs less than the cylindrical type and therefore is far more commonly used. The bell-mouth orifice has higher static pressures and static efficiencies than the sharp-edge type in the high-efficiency range and so is specified wherever the improved operation justifies the higher cost.

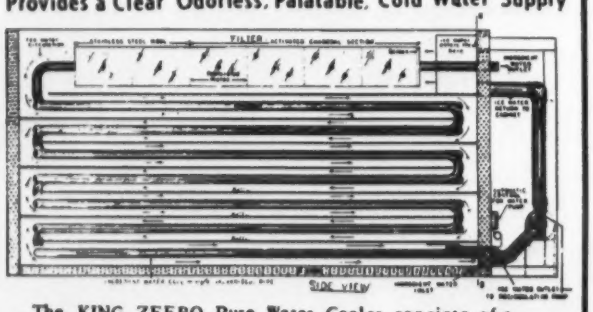
NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

For Ideal Filtered Ingredient Water at Low Cost



(PATENTS PENDING)

Choose "King Zeero's" NEW
PURE WATER COOLER
Provides a Clear Odorless, Palatable, Cold Water Supply



- Cools water 34 degrees Fahrenheit.
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- Pure water is chilled by ice water -- prevents freeze-ups.
- The ideal water for ingredient and wash water applications -- food processing needs, butter or cheese wash, dough water, poultry or produce chilling.

Available in Cabinet or Vertical Styles.

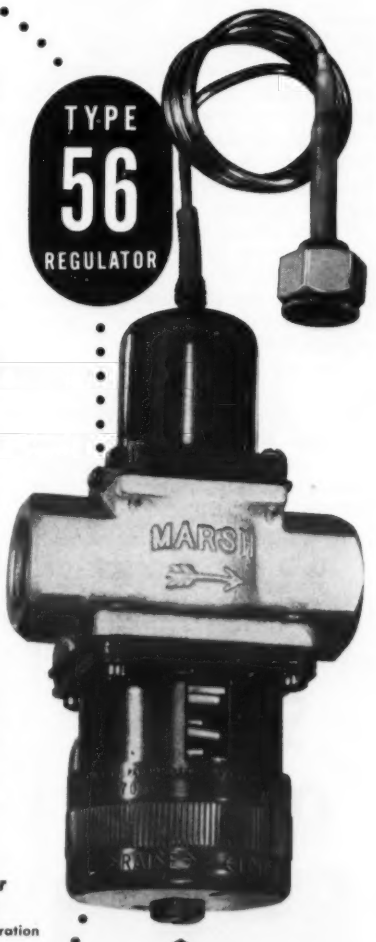
The KING ZEERO Pure Water Cooler consists of a galvanized pipe water coil, a self contained efficient charcoal filter, a KING ZEERO Ice Builder and an ice water recirculation pump, with controls and necessary valves for flow and back wash, all contained in an integral unit.

Write for Bulletin PWC 59.

THE KING ZEERO COMPANY
4300-14 W. Montrose Ave.
Chicago 41, Ill.
Manufacturers of Ice Builders - Ice Builder Cabinets - Ice Banks Pure Water Coolers

THE MOST! — in every department

TYPE 56 REGULATOR



That's the verdict of men who know water valves.

They like its wide range: One valve adjustable for both R-12 and R-22 without changing springs. Simply turn the knurled cap to any setting from 60 to 270 lbs. Cap can be easily removed and the setting made tamper proof when desirable.

They like the way it fits in: Small and compact, but with ample capacity, smooth modulation, excellent flow characteristics.

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Buy it from your wholesaler

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Nut provides for tamper proof setting when this is desirable.

MARSH *Refrigeration Instruments*

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Text

Of Treasury Department's New Regulation on Room Air Conditioner Tax

Subpart I—Refrigeration Equipment, Electric, Gas, and Oil Appliances, and Electric Light Bulbs

Refrigeration Equipment

§ 48.4111 Statutory provisions; imposition of tax.

Sec. 4111. **Imposition of tax.** There is hereby imposed upon the sale of the following articles (including in each case parts or accessories therefor sold on or in connection with the sale thereof) by the manufacturer, producer, or importer a tax equivalent to the specified percent of the price for which so sold:

Articles Taxable at 5 Percent—

Household type refrigerators (for single or multiple cabinet installations) having, or being primarily designed for use with, a mechanical refrigerating unit operated by electricity, gas, kerosene, or gasoline.

Household type units for the quick freezing or frozen storage of foods operated by electritcy, gas, kerosene, or gasoline.

Combinations of household type refrigerators and quick-freeze units described above.

Articles Taxable at 10 Percent—

Self-contained air-conditioning units. [Section 4111 as amended and in effect Jan. 1, 1959]

§ 48.4111-1 Imposition of tax.

(a) **In general.** Section 4111 imposes a tax on the sale by the manufacturer, producer, or importer of the following articles (including in each case parts or accessories therefor sold on or in connection with the sale thereof):

(1) Household type refrigerators (for single or multiple cabinet installations) having, or being primarily designed for use with, a mechanical refrigerating unit operated by electricity, gas, kerosene, or gasoline;

(2) Household type units for the quick freezing or frozen storage of foods operated by electritcy, gas, kerosene, or gasoline;

(3) Combinations of household type refrigerators and quick-freeze units described in subparagraphs (1) and (2) of this paragraph; and

(4) Self-contained air-conditioning units.

(b) **Rates and computation of tax.** (1) Tax is imposed on the sale of the articles specified in section 4111 and paragraph (a) of this section at the rates specified below:

	Percent
Household type refrigerators, household type quick-freeze units, and combinations of such refrigerators and quick-freeze units	5
Self-contained air-conditioning units	10

(2) Tax is computed by applying the applicable rate to the price for which the article is sold. For the definition of the term "price," see section 4216 and the regulations thereunder contained in Subpart M of this part.

(c) **Liability for tax.** The tax is imposed by section 4111 is payable by the manufacturer, producer, or importer making the sale.

§ 48.4111-2 Definitions.

For purposes of the tax imposed by section 4111, unless otherwise expressly indicated:

(a) **Household type refrigerators.** The term "household type refrigerators" includes refrigerators for single or multiple cabinet installations which—

(1) Have an actual, practical, commercial fitness, or are specifically designed and constructed, for household use,

(2) Have, or are primarily designed for use with, a mechanical refrigerating unit operated by electricity, gas, kerosene, or gasoline, and

(3) Are arranged to provide refrigerated storage space for the preservation of food or low temperature space for making ice cubes and frozen desserts.

(b) **Household type units for the quick freezing or frozen storage of foods.** The term "household type units for the quick freezing or frozen storage of foods" includes units solely for the quick freezing of foods or solely for the storage of frozen foods or combinations thereof which—

(1) Have an actual, practical, commercial fitness, or are specifically designed and constructed, for household use, and

(2) Are operated by electritcy, gas, kerosene, or gasoline.

(c) **Self-contained air-conditioning units.** The term "self-contained air-conditioning units" includes a factory-made encased assembly or one sold for assembly on installation which—

(1) Is designed (i) for the direct delivery of conditioned air, the unit being suitable for effecting such delivery without the use of ducts, and (ii) for the removal of heat,

(2) Incorporates means for cooling, dehumidifying, and circulating the air of a room or other enclosure, and

(3) Is designed for use as a portable unit, console unit, or for installation in or in front of a window or other opening. An assembly which meets the conditions in subparagraphs (1), (2), and (3) of this paragraph, and which also includes means for ventilating, heating, or performing other functions, constitutes a "self-contained air-conditioning unit" in its entirety or in part, depending on the facts in each case. However, the term "self-contained air-conditioning units" does not include any unit which requires the use of a water-cooled system for the discharge of removed heat. Likewise, the term does not include units which are primarily designed for use in connection with motor vehicles and which are taxable as automobile parts or accessories under section 4061 (b) and the regulations thereunder contained in Subpart H of this part.

(d) **Cross references.** For other relevant definitions, see § § 48.0-2 and 48.7701.

§ 48.4111-3 Parts or accessories.

(a) **In general.** The tax attaches in respect of parts or accessories for articles specified in section 4111 and paragraph (a) of § 48.4111-1 sold on or in connection with the sale thereof at the rate applicable to the sale of the basic articles. The tax attaches in such case whether or not the parts or accessories are billed separately. On the other hand, no tax attaches in respect of parts or accessories for articles specified in section 4111 and paragraph (a) of § 48.4111-1 which are sold otherwise than on or in connection with such articles or with the sale thereof.

(b) **Essential equipment.** If taxable articles are sold by the manufacturer, producer, or importer thereof without parts or accessories which are considered equipment essential for the operation or appearance of such articles, the sale of such parts or accessories will be considered, in the absence of evidence to the contrary, to have been made in connection with the sale of the basic article even though they are shipped separately at the same time or on a different date.

§ 48.4111-4 Tax-free sales.

For provisions relating to tax-free sales of articles referred to in section 4111, see—

(a) Section 4221, relating to certain tax-free sales;

(b) Section 4222, relating to registration; and

(c) Section 4223, relating to special rules relating to further manufacture; and the regulations thereunder contained in Subpart N of this part.

§ 48.4111-5 Effective date.

The provisions of § § 48.4111-1 through 48.4111-4 are effective as provided in Subpart A of this part except that under the authority of section 7805(b) the provisions of such sections shall not be applicable in respect of sales made by a manufacturer, producer, or importer before the first day of the first calendar month which begins more than 30 days after the date of publication of the regulations in this subpart in the "Federal Register" of the following articles:

(a) "Household type refrigerators," as defined in paragraph (a) of § 48.4111-2, which have a net storage space exceeding 14 cubic feet.

(b) Combinations of "household type refrigerators" and "household type units for the quick freezing or frozen storage of foods," as defined in paragraphs (a) and (b) of § 48.4111-2, which have a net storage space exceeding 14 cubic feet in the normal temperature refrigerator portion.

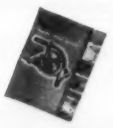
(c) "Self-contained air-conditioning units," as defined in paragraph (c) of § 48.4111-2, which have a total motor horsepower of 1 or more horsepower, or, in the case of absorption types, a total cooling capacity of 10,000 or more B.T.U. per hour.

***Handy* Tube Bender**

Smoothly Bends any pipe or Tubing ⅜"-1⅛" O. D.

• Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.

See your supply house—or write for free folder today.



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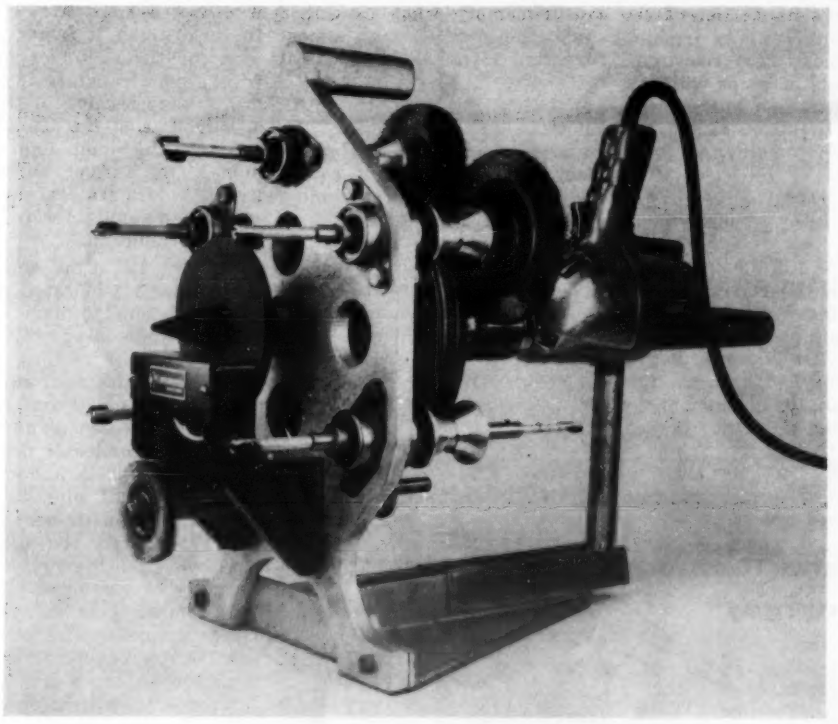
It Reams! It Cleans! It Grinds! It Sands! It Drills and Buffs!

THE NEW PORTABLE

Multiple Purpose Power Tool



It's Been Tested & Proven

•

Now in use— by one of the Nation's Largest Chain Food Stores

•

SAVE 98% ON COST OF CLEANING MATERIAL!

SAVE 95% ON CLEANING TIME!

•

This new portable MULTIPLE PURPOSE POWER TOOL is designed to operate with a standard half-inch electric drill. Around the pneumatic tire there are six spindles—you simply insert the proper size brushes when needed. The pneumatic tire is self centering—by increasing the air pressure in the tire you can instantly deliver more power to the spindles without risk of slipping.

NOTE THESE FEATURES:

Saves 98% on cost of cleaning material! Saves 95% cleaning time! Polishes surface free of sand and steel wool (eliminates small particles of steel wool in system thus preventing costly breakdown in refrigeration and air-conditioning power units). Cleans inside and outside! Reams! Grinds! Sands! Buffs! Drills! Proper size cleaning brushes operate at the correct speed for maximum cleaning efficiency: (a) Cleaning Brush: 2200 R.P.M. (b) Reamer: 400 R.P.M. Sealed ball bearings! Detachable standard ½" electric drill! Weighs only 38 lbs., with electric drill! Thoroughly cleans tapped holes, removes burrs, rust and grit! Prepares copper terminals for soldering! Removes scale! Reversible electric drill increases life of cleaning brushes! Cleans ¼" up to and including 4" tubing and fittings! With special adapter insert in place of reamer, will clean up to 6"! POWER: 115 V AC 60 cycle 1 phase, or any power source that your present ½" electric drill is working on.

Building and maintenance men are confronted with an increasing trend toward the use of copper tubing and piping in fluid conduits. Refrigeration service, new air-conditioning and other installations involve considerable processing of tubing of different sizes and weights. Hand fabrication is tedious and in many instances unsatisfactory. Power driven units can accomplish superior work, but constant changing of tools, brushes and similar attachments of the base power unit is time consuming. In addition, the work piece being handled must be laid aside during the tool changes and is subject to damage during these intervals.

This NEW PORTABLE MULTIPLE PURPOSE POWER TOOL can be set up or designed with its own power mechanism included. The motor could be mounted and attached with a fixed coupling to the shaft, holding the tire and wheel.

FOR ADDITIONAL INFORMATION WRITE TO

Tabet MANUFACTURING CO., INC.

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TECH CENTER

by Frank J. Versagi, Technical Editor

Applied Electrical Theory (2)

Ohm's Law

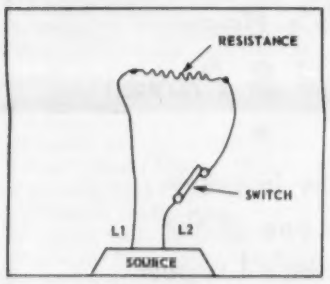
The relationship, indeed the interdependence among electromotive force, resistance, and current is clearly indicated by the formal definition of a volt—**the amount of electromotive force required to cause 1 ampere of current to flow through a resistance of 1 ohm.**

The relationship is even more clearly defined by **Ohm's Law** named after the German scientist, George Simon Ohm, who determined the mathematical comparisons early in the 19th century. Stated practically, Ohm's law shows that the **greater the emf,** the **greater** the current; **the greater the resistance,** the **less** the current.

Mathematically, the relationship is stated as **"I equals E over R."**

$$I = \frac{E}{R}$$

where I is the symbol for current in amps, E is the symbol for emf in volts, and R is the symbol for resistance in ohms.



Suppose in the simple circuit above, the resistance symbol represents an electric iron, rather than a lamp bulb as it did in our previous discussion. With an ohmmeter, we determine the resistance to be 15 ohms. Either by taking the power company's word for it or with a voltmeter, we determine the voltage is 120. How many amps will the iron draw?

$$I = \frac{E}{R} = \frac{120}{15} = 8 \text{ amps}$$

If the iron is replaced with a 100-watt bulb, we might find the bulb's resistance to be in the order of 145 ohms. With the same emf—

$$I = \frac{E}{R} = \frac{120}{145} = 0.83 \text{ amp}$$

It is obvious that the lower the resistance, at a given voltage, the higher the current which will be drawn. Theoretically, **as the resistance approaches zero, the current approaches infinity.** In thermoelectric refrigeration it is not uncommon to hear of electrical circuits carrying over 1,000 amps at less than 2 volts. In such instances, the conductors must be large enough in weight and size to handle this great current without overheating.

If, in our simple circuit, we short the resistance out of the line, 120 volts will be pushing against almost zero resistance and hundreds of amps will flow—until a fuse or a burned wire opens the circuit. Assume the wire in our circuit has 0.2 ohm resistance—

$$I = \frac{E}{R} = \frac{120}{0.2} = 600 \text{ amps}$$

* * *

The basic E-over-R formula may be altered, **transposed,** to calculate any one factor, if the other two are known. Say a volt-ammeter had been used to measure the 1,000 amps and 2 volts mentioned in the thermoelectric example. What is the resistance?

$$R = \frac{E}{I} = \frac{2}{1{,}000} = 0.002 \text{ ohm}$$

Returning to the electric iron, assume the readings were 120 volts and 8 amps. What is R?

$$R = \frac{E}{I} = \frac{120}{8} = 15 \text{ ohms}$$

* * *

The formula may be transposed in one other way: $E = IR$.

In the 100-watt bulb example, suppose we had measured the resistance and the current but had no voltmeter. What is the emf in volts? (The current was 0.8 amps; the resistance 145 ohms.)

$E = IR = 0.83 \times 145 = 120$ v.

In electrical talk, the amount of voltage used up by each resistance in a circuit is called the **voltage drop** or the **IR drop** through that resistance.

There are several tricks held to be helpful in remembering the Ohm law formula and its transpositions. I do not recommend such memory helps. If one uses Ohm's law frequently in his work, he does not need a memory aid. And no engineer trusts memory when making a calculation involving an almost forgotten formula. He looks it up.

Actually, most of the difficulty is in remembering the transpositions, since the statement of the law as "I equals E-over-R" gives the first formula

$$I = \frac{E}{R}$$

To determine how to transpose, plug simple numbers into the basic formula. Thus—

$$I(4) = \frac{E(8)}{R(2)}$$

From this it is easy to see that 8 equals 2-times-4 and 2 equals 8-over-4.

* * *

Ohm's law, then, allows us to determine mathematically the third factor when any two can be determined by measurement or by reference to a specification sheet.

While it is possible to get an increasing, even an unlimited number of amps from any voltage source—as resistance approaches zero—practical considerations, such as the heat needed to light the lamp or operate the iron, limit the current to a level which can be safely carried by the conductors and the devices on the line.

Some practical applications of the information so far:

1. A 100-watt bulb manufactured for 120-volt operation will glow extra bright on 240 volts for a few seconds—then burn out. The resistance of the filament was considered in the design of its length and diameter for 120 volts. At 240 volts this same resistance passes twice as much current—more than it is designed to carry. It overheats and burns out—opening the circuit.

2. **For a given material, resistance increases as the length of the conductor increases.** This accounts for the voltage drop, the IR drop, on long extension lines. At a wall outlet, an electric iron may draw 9 amps at 120 volts. At the end of a 12-ft. household extension wire, it draws 8 amps at 105 volts. In rural areas, it is not uncommon for the customer farthest from a pole transformer to have low voltage because of the voltage drop from the transformer through the long line to his home. One farmer burned out several refrigerators until the power company corrected a low voltage condition.

Ideally, IR drop should be kept under 3% of rated voltage. It is common to have 5%; a 10% voltage drop can cause malfunction of motors, relays, and similar electrical devices.

3. **For a given material, resistance increases as the diameter of the conductor decreases.** A lamp circuit in a home may call for No. 12 wire. Install a central air conditioner or electric range, and you must use No. 8 wire for the circuit. (The diameter of wires get larger as the number gets smaller.) A larger diameter wire can carry more amps (45-60 amps for a range) than can a smaller wire (15 amps for a lighting circuit) without overheating.

Next: SERIES CIRCUITS.

Askew To Be Chairman Of Second RSES Workshop In San Luis Obispo

SAN FRANCISCO—Peter H. Askew of Los Angeles has accepted appointment as Workshop Educational Chairman, President Fredric L. Pound of California Association, Refrigeration Service Engineers Society, has announced.

The second annual workshop program will be held in the Air Conditioning and Refrigeration Engineering building at California State Polytechnic college in San Luis Obispo Friday and Saturday, Jan. 22-23, 1960.

Askew is president of Thermal Products, Inc., Los Angeles refrigeration wholesaler.

In Toledo

Consent Judgement Settles Civil Suit Against G-E Outlets

WASHINGTON, D. C.—Settlement of a civil anti-trust complaint against a distributor and nine retailers of General Electric major appliances in the Toledo area was reported by the Justice Dept.

Entered in the Federal District Court in Toledo, the consent judgment prohibits the defendants from agreeing to fix prices and to boycott other retailers. Earlier the defendants were fined $19,000 in a criminal case on similar charges.

Named in the civil suit were Commercial Electric Co., the distributor, and these retailers:

Frank Rogers Furniture City, Inc.; S & K Appliances, Inc. (Tiedke's Annex); Gross Electric Fixture Co.; Woodville Appliances, Inc.; Phillips Appliance & Air Conditioning; Superior Refrigeration Sales & Service; Edgar L. Bauerfeld, proprietor of Bauerfeld Paints & Appliances; and Alban C. Clark, proprietor of Cliff Clark Home Appliance Sales & Service.

NEW Pressure and Temperature Controls
Assure Greater Accuracy
. . . and Reliability

Especially designed for modern air conditioning systems, these new A-B controls provide lower differentials and longer life, even when cycled from zero to maximum setting. Both range and differential are adjustable. The precision operating switch has a positive "snap action"—vibration cannot cause faulty operation. And its silver contacts never need attention. Write for full details about these new A-B controls.

Bulletin 837 Temperature Control equipped with capillary tube and bulb. Available for temperature ranges from −150°F to 490°F.

Bulletin 836 Pressure Control for use at pressures from 30" vacuum (Hg) up to 900 psi.

Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.
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ALLEN-BRADLEY
Member of NEMA
Quality Motor Control

MINERALLAC
HEAVY DUTY & MEDIUM
JIFFY CLIPS

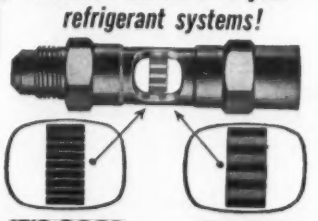
Also available without mounting hole for use with gun.

Made of heavier materials! Has exclusive inverted rib, that provides more strength at the bend of clip . . . and, of course, adds the benefits of famous "Snap On" feature! Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

Simplest, most economical way to detect moisture in your refrigerant systems!

Positive Sealing
LIQUID EYE®
INDICATOR
featuring the built-in
MOISTURE-REACTOR



No more guesswork about the condition of your R-12 and R-22 refrigerant systems. No installation problems either.

Now you can get both in the same unit
. . . LOWEST COST MOISTURE REACTOR PROTECTION PLUS ALL THE PROVED LIQUID EYE FEATURES!

CONTACT YOUR WHOLESALER TODAY

IT'S GOOD
The MOISTURE-REACTOR is composed of alternate, permanent and changing (Reactor) color bars. When all the bars appear the same color (green)—it's good—there's no moisture in system.

IT'S BAD
If moisture enters the system, every other color bar changes from green to yellow—then it's bad—the dehydrator should be replaced. When the system is moisture-free again, the Reactor color bars will change back to their original solid green color.

Allin
ALLIN MANUFACTURING CO.
410 NORTH HERMITAGE AVE. • CHICAGO 22, ILLINOIS

OVER 1,000,000 LIQUID EYES SOLD TO DATE!

Room Unit Tax--

(Concluded from Page 1, Col. 5)

livery without the use of ducts, and (ii) for the removal of heat."

Some industry sources reportedly feel use of the word "suitable" emphasizes eventual use of the product rather than the purpose for which the units were designed.

This is causing some concern. The tax committee of ARI plans to meet soon to study the regulation and it may decide to ask the Internal Revenue Service to clarify the rules so there can be no doubts about their meaning.

Said to be involved are room air conditioners sold by a manufacturer who designs them for use with ducts but knows that they will be used without ducts.

Another industry recommendation regarding definition was not followed.

Some changes were also made in the new regulation in the imposition of the 5% tax on household refrigerators and food freezers, primarily in the deletion of arbitrary size limits of such products subject to tax.

Most room air conditioner manufacturers said they would turn out as many units as they can before the tax deadline, with at least one—Gibson—producing on an overtime basis.

Some makers put pre-Dec. 1 production and shipments at 10 or 20% of 1960 line output. However, the steel strike is hampering production of several manufacturers (see related story on page 1.

One producer, Fedders, said it is having to allocate supplies. The company said it won't be able to make as many units as it would like because of steel shortages and because the new tax rule goes into effect sooner than expected.

Some distributors and dealers are stepping up their orders, although apparently not to any substantial extent, generally speaking. Some others had already ordered a larger number of units than usual at this time of year. Buying activity varied considerably from area to area. Some felt that the paper work required by the new regulation would hold down the number of tax-free units available to dealers.

Trane Plant--

(Concluded from Page 1, Col. 3)

customers by locating in Salt Lake City.

The plant will be basically a sheet metal operation.

"We expect to build commercial air conditioners, heating units, fans and ventilating equipment, and heat transfer coils," Minard said. "We also expect to do partial fabrication and final assembly of refrigeration compressors for big building air conditioning."

The new plant will serve 11 western states which include Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, Montana, Wyoming, Colorado, and New Mexico, plus Alaska and Hawaii.

Trane has home offices and major manufacturing facilities in La Crosse. The company also has plants in Scranton, Pa.; Clarksville, Tenn.; and Toronto, Ont., Can.

Adds New Cooling Line at Clarksville

CLARKSVILLE, Tenn. — The first new "De Luxe Self-Contained Climate Changer" air conditioning units to be manufactured at The Trane Co. plant here rolled off the production line recently, Robert L. Galloway, plant manager, announced.

The commercial Self-Contained line is being added to the line of residential air conditioning and furnaces that have been manufactured in Clarksville since July of 1958. The Self-Contained line of products had previously been manufactured by Trane in La Crosse, Wis.

A total of 22 models of De Luxe Self-Contained Climate Changers ranging from 3 to 15-ton capacities will be built.

The company estimates this expansion will cost over $240,000 for the purchase of new machines, tools, and equipment in the transfer of this line to Clarksville.

The new commercial Self-Contained lines are completely redesigned and have been in production less than a year, it was noted. The units are attractively styled and come in neutral colors, the company said. They use a minimum of floor space or can be built into a wall, and are quiet, according to Trane.

"With this move, Trane will supply heating and air conditioning products for both commercial establishments and residences to 11 regional warehouses throughout the United States from the Clarksville plant," the announcement said.

Slant/Fin Completes Addition to Plant

RICHMOND HILL, N. Y. — Slant/Fin Radiator Corp. has completed an addition to its main manufacturing facilities.

Milton M. Brooks, general manager, said the expansion will allow for added automated assembly lines to keep pace with the increased demand for the company's line of residential and commercial hydronic heating equipment.

Carrier To Offer Resistance Heating--

(Concluded from Page 1, Col. 2)

mentary resistance heating. This can be provided by combining a central heat pump installation with baseboard heating elements which will permit all of the benefits of central air conditioning with room-by-room temperature control, the announcement said.

For new house construction, Carrier is offering a complete line of continuous baseboard low rise units in five sizes. With this system, all exterior walls of the house can be covered, using heating elements placed between blank sections to give a continuous baseboard appearance, it was stated.

Thermostatic controls can be mounted directly on the baseboard unit or remotely on an interior wall.

Carrier also introduced a line of self-contained baseboard heaters intended to supplement heating systems in existing homes when new rooms, enclosed porches, and bedroom wings are added. Equipped with a thermostat, they will be available in four sizes, from 2½ to 8 ft. in length, and from 300 to 1,250-watt capacity.

The wall insert heaters by Carrier will be offered in four sizes ranging in input capacities from 1,500 to 4,000 watts. They are designed to fit between two-by-four studs, and can be used for entry ways, living rooms, bedrooms, and recreation rooms. They are also suited for motel and hotel applications.

A forced air fan for circulation and a built-in thermostat are other features. A closely spaced extruded metal guide will keep children's fingers out of the unit, it was noted.

A special bathroom unit also is included in this series. It is smaller in size and capacity and will feature an on-off switch and built-in thermostat.

Buffalo Forge Nets $319,297 for Quarter

BUFFALO — Buffalo Forge Co. reported a net profit of $319,297, equal to 49 cents a share, in the three months ended Aug. 31, the third quarter of the company's fiscal year.

The net for the company and its subsidiaries was higher than in the previous quarter but down slightly from the same period last year.

President William R. Heath said orders received through September in the current fiscal year were up 13% from the same period last year. Shipments in the third fiscal quarter ran slightly ahead of those a year ago.

Frozen Foods--

(Concluded from Page 1, Col. 3)

perature to which frozen foods should be subjected during transportation, storage, and retailing.

The distributors and some others want the code modified on the ground that it is too harsh. It's not even constitutional, in the opinion of Ellis Arnall, NFFDA's legal counsel.

Arnall, a former U. S. Attorney General and Governor of Georgia, drew from Harold Clark, AFDOUS president, an admission that the code pertains to quality control only and not to "hazards to the public health and welfare."

In a statement made from the convention floor, Arnall asserted that adoption of the present code by individual states would be declared unconstitutional if tested in the courts.

NFFDA supports the concept of the code but is uncertain of inequities in it, it is understood. The group wants the code modified prior to expected adoption by Massachusetts and Connecticut early next year.

Some believe that because AFDOUS is encountering opposition to the code, it may not be enforced for another year or two—if at all.

Clark stated at the NFFDA meeting that the code is now up to the individual states.

SALES ENGINEER

for Central System Air Conditioning

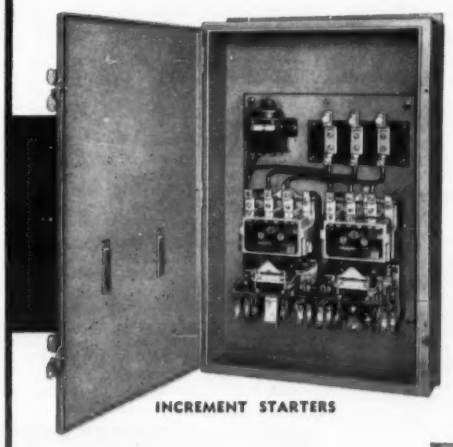
Sales Engineer with experience in Central System Air Conditioning and Heat Pumps wanted. You will be trained at the factory, then travel to work with Regional Sales Managers, establishing distributors, dealers, and special projects. Experience in engineering and application desired. Send full particulars of background, experience, photograph and salary expected to

S. J. SEIBERT, Manager,
Air Conditioning Dept.

AMANA REFRIGERATION, INC.
AMANA, IOWA

STOP OBJECTIONABLE VOLTAGE DROP!

Choose from a COMPLETE LINE of REDUCED VOLTAGE STARTERS for Air Conditioning and Refrigeration Applications

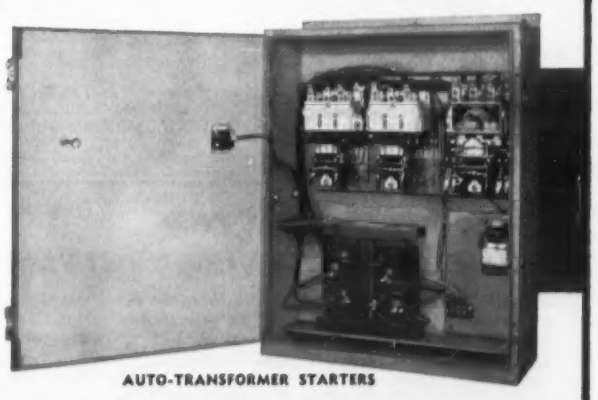


INCREMENT STARTERS

Specify **FURNAS** for your reduced voltage applications. Only Furnas Electric offers the exclusive "in-between" sizes 1¾ and 2½, plus encapsulated magnet coils, silver-cadmium oxide contacts and non-tracking arc chambers for long uninterrupted service.

INCREMENT STARTERS through 200 hp for part winding motors offer the most economical control for most refrigeration and air conditioning applications. Top quality components for long trouble-free life.

AUTO-TRANSFORMER STARTERS are furnished with closed transition starting as a standard feature, at the same price customers usually pay for open transition starting. You get more starter for your money.



AUTO-TRANSFORMER STARTERS

PRIMARY RESISTANCE TYPE STARTERS provide smooth acceleration, closed transition and high starting power factor. Designed for rugged use, they contain silver-cadmium oxide contacts, non-tracking arc chambers, tamper-proof thermal overload relays, and encapsulated magnet coils.

For more information, write Furnas Electric Co., 1111 McKee Street, Batavia, Illinois

A62

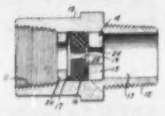
FURNAS

FURNAS ELECTRIC COMPANY
BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

PATENTS

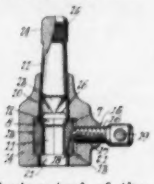
Week of June 23 (Concluded)

2,891,578. FLOW CONTROL DEVICE. Robert R. Dahl and Howard L. Erickson, Chicago, Ill., assignors to The Dole Valve Co., Chicago.



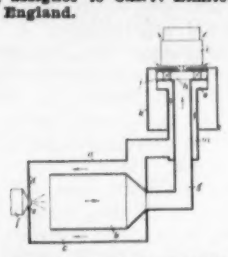
In a flow control device, a housing having a passageway leading therethrough, a seat in said passageway having a flow passageway leading therethrough, a resilient disc-like annular flow control device having a generally concave face on the downstream side thereof seating against said seat, the inner margin of said annular flow control device defining a straight-line flow orifice of less cross sectional area than the cross sectional area of the passageway through said seat and tapering outwardly from the upstream to the downstream end thereof when said flow control device is in an unstressed condition. . . .

2,891,596. HAND OPERATED TUBE FLARING TOOL. John H. Stanley, Euclid, Ohio, assignor to Parker-Hannifin Corp., Cleveland, Ohio.



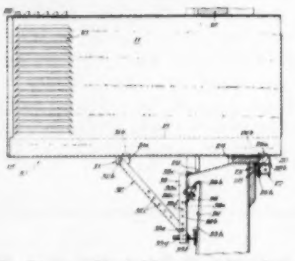
1. In a flaring tool of the character described, a body having a tube flaring die receiving slideway in its lower portion and a bore opening into the slideway in its upper portion, a tube flaring die mounted in the slideway and having a tube receiving more and a flaring seat disposed in alignment with the bore of the body, a flaring element reciprocable in the bore of the body and having a coniform flaring end projectable against a tube end in the die bore to flare said tube end against the flaring seat. . . .

2,891,631. AIR FILTERS. Basil Edward Knight, Eastcote, Pinner, England, assignor to C.A.V. Limited, London, England.



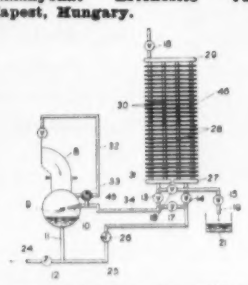
1. An air filtering apparatus comprising in combination a rotary fan of the kind having an axial inlet and a peripheral outlet, a fine mesh screen surrounding and covering the peripheral outlet of the fan, an air inflow duct connected at one end to the inlet of the fan for conveying thereto air to be cleansed, a collecting chamber enclosing the fan and screen to receive air flowing from the fan through the screen, and an air outflow duct surrounding the air inflow duct and having an entrance end which extends radially outwards and is disposed within the collecting chamber to receive cleansed air therefrom.

2,891,754. SUPPORT FOR AIR CONDITIONING APPARATUS. Donald Kuhlenschmidt, Newburgh, and Curtis O. Fowler, Spurgeon, Ind., by mesne assignments, to Whirlpool Corp., a corporation of Delaware.



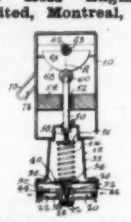
2. In an adjustable mounting for an air conditioner housing of the type to be mounted in a window of an enclosure, the combination of a pair of transverse lower frame members extending parallel to the window and a pair of elongated frame members secured to the transverse frame members and extending toward the window, said elongated frame members being provided at one end with clamping means for engaging below the window stool and preventing movement of the housing outward, said elongated frame members also supporting a dependable pivoted brace. . . .

2,891,773. APPARATUS FOR FILLING AND EMPTYING AIR-COOLED CONDENSERS. Laszlo Heller, Budapest, Hungary, assignor to Licencia Talamanyokat Ertekesito Vallalat, Budapest, Hungary.



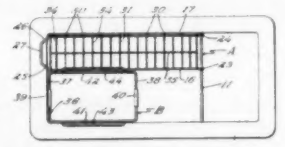
1. An apparatus for filling and emptying and for normal operation of cooling towers of air condensers, comprising in combination a pipe system; heat exchangers incorporated in said pipe system, said heat exchangers having a first and a second vertical group of pipes; a pump for circulating the cooling water in said pipe system and for supplying cooling water to said pipe system for filling; a mixing condenser. . . .

2,891,784. PRESSURE REGULATOR WITH ASSOCIATED RELIEF VALVE. John H. Taylor, Lachine, Que., Can., assignor to Ross Engineering of Canada Limited, Montreal, Que., Can.



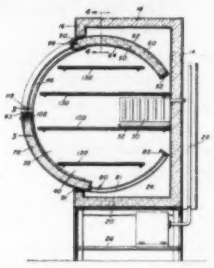
1. In a fluid pressure reducing valve embodying a spring urged diaphragm mounted in a first housing and a diaphragm spring mounted axially of said housing with one end engaging said diaphragm, spring adjustment means comprising a second housing mounted for rotation within said second housing about a shaft disposed transversely to the axis of said diaphragm spring. . . .

2,891,833. FREEZER PACKAGE RACK AND IMPROVED ARRANGEMENTS THEREOF. Edmund J. Bukicky, St. Paul, Minn., assignor, by mesne assignments, to Whirlpool Corp., a corporation of Delaware.



2. In combination, a chest type freezer cabinet, said cabinet being of generally rectangular shape, a first basket slidably supported within said cabinet for movement toward and away from two parallel walls of said cabinet, and a second basket slidably supported for movement toward and away from the other two parallel cabinet walls, said second basket having one edge slidably supported on one of the two first named parallel walls and having an opposite edge slidably supported upon said first basket.

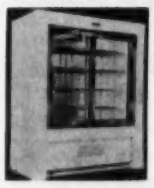
2,891,834. REFRIGERATOR DOOR. Lawrence C. Lake, Kenmore, N. Y.



2. In a refrigerator casing, the combination of a front wall having an opening, a pair of side walls having portions projecting forwardly from the plane of said front wall, a pair of arcuate tracks provided on the respective side walls including their forwardly projecting portions, upper and lower doors of an arcuate cross-section movable in respective upper and lower portions of said tracks between an open position wherein the doors are retracted into said casing and a closed position wherein the doors are in abutment to form a closure for the opening in said front wall. . . .

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

BEVERAGE MERCHANDISER



3 self-contained models, 4 remote models. Sizes from 5-12 ft. Available in 2-3-4 door models.

DEALERS
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For Information

National Market Equipment Co.
25831 Dequindre, Box 166
Madison Heights, Michigan
(Telephone: Lincoln 5-0900)

AN UNUSUAL OPPORTUNITY

One of the oldest manufacturers of trailer and truck refrigeration requires sales representation in the following territories:

Kansas City
St. Louis
Cincinnati
Buffalo
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Manufacturers agents interested in handling the number one line of trailer and truck refrigeration reply to BOX A6383, Air Conditioning, Heating & Refrigeration News, furnishing the following information: Lines handled, territory covered, and length of time in business.

WANTED
AIR CONDITIONER ENGINEERS

College graduate engineer with minimum of three years experience in Residential Air Conditioning desiring position with diversification in newly established division of fast growing company.

WRITER APPLICATION ENGINEER—to prepare installation, application manuals, instruction and specification sheets for heating; residential, commercial air conditioners and heat pumps.

DEVELOPMENT ENGINEER—design of advance products in residential heat pumps.

APPLICATION ENGINEER—assist in product development and design. Guide field engineers with installation, service, sales of residential air conditioners and heat pumps.

Mail resume direct to:

FEDDERS CORPORATION
57 Tonawanda Street
Buffalo 7, New York
Attention: J. P. Guerra, Engineering Department

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RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

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POSITIONS WANTED

COMMERCIAL AND domestic refrigeration mechanic, caught in recent Convair lay-off, desires permanent position. Experienced also in environmental test chambers, cascades, multiple stages, pneumatic and electric capacity control, and portable ground support equipment (Hokanson, Hussmann, etc.) Will relocate. ED BLEVINS, Box 418 Euless, Texas.

SALES ENGINEER: Specialist in central residential and commercial air conditioning. Know how to sell and close. Excellent background in all phases of air conditioning, heating, and refrigeration. Have represented top manufacturers. Have following in Georgia, Florida, and Carolinas. Best of reasons for seeking new association. Let's get together. Please write for resume and picture. BOX A6393, Air Conditioning, Heating & Refrigeration News.

CHIEF ENGINEER, plant manager. An aggressive self-starter, full of initiative and enthusiasm for broader engineering or manufacturing responsibilities. Nineteen years' experience handling engineering and manufacturing problems. The last 5 years of which have been with refrigeration and air conditioning systems, including heat pumps. BOX A6395, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

DESIGN ENGINEER—Heating and air conditioning product lines being expanded. Several good opportunities available for young graduate engineers capable of project design work. Some sheet metal fabrication experience preferred. Apply DUNHAM-BUSH, INC., 506 E. Second Street, Michigan City, Indiana.

DEVELOPMENT ENGINEER with minimum of 5 years' experience as design or development engineer on coils, heat exchangers, refrigeration or air conditioning packaged equipment. Excellent salary plus merit bonus plan with aggressive company. Write Chief Engineer, OAK MACHINERY CORPORATION, 578 Oak Street, Copiague, Long Island, N. Y.

UNUSUAL OPPORTUNITY for a qualified sales engineer with a proven record selling industrial refrigeration products for services in the construction industry, to join a small, growing organization in a key position leading to important advancement. A college education with an engineering degree desirable, but not essential. Age, 30-45. Starting salary, $7,000 to $9,000, plus a specific percentage cash profit sharing bonus and liberal fringe benefits. Write in confidence giving details of education, experience, and include earnings to: President, POST OFFICE BOX 476, Richmond, Virginia.

AIR CONDITIONING service man qualified to service air conditioning systems. Knowledge of controls, air balancing, refrigeration, and heating components necessary. We are a medium sized air conditioning contractor with exclusive Carrier dealership. Top wages and steady immediate employment to right man. Send resume to THERMODYNE CORP., 1551 Cota Avenue, Long Beach 13, Calif.

SERVICE MANAGER wanted by old established air conditioning & heating contractor in Chicago. Must have the ability to manage a well established existing service department covering commercial and industrial installations and maintenance contracts. Reply BOX A6377, Air Conditioning, Heating & Refrigeration News.

EXPERIENCED SERVICE manager to set up and run service department for commercial, industrial air conditioning, refrigeration and heating. Excellent opportunity for a qualified man. This has unlimited potential earnings. We cover the greater Chicago area. Replies must give past experience, education, age, former employers and all other pertinent information. BOX A6385, Air Conditioning, Heating & Refrigeration News.

WANTED BY central California refrigeration and air conditioning contractor of long standing, journeymen mechanics experienced in market refrigeration, air conditioning, some heating. Send resumes to BOX A6391, Air Conditioning, Heating & Refrigeration News.

A DISTRICT supervisor for the Minneapolis-St. Paul area by manufacturer of commercial refrigerators. Preferably he is selling to food chains, super markets, wholesale grocers and refrigeration distributor or employed by a manufacturer, but desirous of improving his situation by locating elsewhere or just anxious to cash in on experience and make more money for himself. If you are the man, send a brief resume of experience to BOX A 6392, Air Conditioning, Heating & Refrigeration News.

ENGINEER EXPERIENCED in commercial refrigerator cabinets desired to assist in design and development section of manufacturer in Southeast. Refrigeration experience not necessary, but sheet metal and cabinet experience desired. Please submit resume of qualifications to BOX A6394, Air Conditioning, Heating & Refrigeration News.

SALESMEN ENJOY the wonderful Florida climate and make money at the same time. Also, make $10,000 to $12,000 per year proven figures. Have you ever sold automatic ice machines, or soft drink dispensers, or soft ice cream and milk shake machines, or restaurant equipment? Retail. We handle and arrange all instalment credit, and make all collections. Are you past 40 years of age? Can you prove the above and give satisfactory character references? This is a permanent connection with a well-established firm with well-known lines and well-financed. Write giving personal data, experience, references and photo. WATERS EQUIPMENT CO., INC., P. O. Box 10013, Tampa 9, Florida.

CABINET ENGINEER required for home freezer department. Must be familiar with production techniques in metal fabricating industry, tooling, and materials used in refrigerators and freezers particularly plastics. Three to five years' experience; state qualifications and salary requirements. Replies in confidence. Location: Southwest. BOX A6396, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT WANTED

WANTED: MANUFACTURERS surplus, outdated or obsolete refrigeration items—expansion & water & shut-off valves, controls, relays, dehydrators, units, tubing, fittings, etc. All sales on a cash closeout basis, large or small quantity. Write or call: COMMERCIAL CONTROLS CO., 257 East 3rd Street, New York 9, New York, ORegon 3-7210.

WANTED, USED 25 ton ice plant preferably with 300 lb. cans, should be complete with tank, can groups, hoist can dump, filter, air system, etc. Send full description to MECHANICAL CONTRACTORS LIMITED, 8230 Mayrand Street, Montreal, Quebec.

SURPLUS PARTS wanted. Pay cash. Compressors, valve plates, and parts for all makes. New or used and repairable. Brunner, Copeland, Carrier, Copelametic, General Electric, Universal and others. Send full description as to Model No., Part No., Horse-power, etc. UNITED REFRIGERATION CORPORATION, 514 W. 12th St., Los Angeles 15, Calif.

EQUIPMENT FOR SALE

USED BUT not abused refrigerators—Westinghouse—Frigidaire—G.E. 4 cu. ft. Mixed or solid trailer loads. Price del'd to your door approx. $25.00 ea., depending on distance from New York. Larger sizes also available—Slightly higher. AJAX, 9602 Ditmas Ave., Brooklyn 36, New York, HYacinth 8-6121.

AJAX ICE Machine parts—We have purchased the inventory of parts, plus all tooling, for the Ajax Electric Iceman, formerly manufactured by Servel, Inc. We are now furnishing replacement parts, for all models including Ajax Pebble Machine. Catalog & prices available. AJAX EQUIPMENT CO., INC., 73 Pine Street, Montclair, N. J.

SOFT ICE cream and shakes—Famous Brownie Freezers now available to selected dealers and areas. Plug-in, mount on counter, stand or back-bar. If interested in offering this more compact, efficient freezer line, contact Sales Manager, BROWNIE FREEZERS, 812 Ohio River Blvd., Avalon, Pittsburgh 2, Pa. at once.

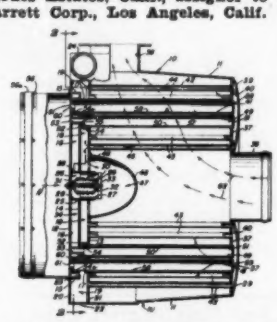
MEYER DOME cutter designed for fast and easy opening of sealed units. Reweld by tipping machine and revolving dome while running bead. Opens 5 ton Tecumseh. Only $239.00. Weld your units with one of these high quality glass insulated arc welders. 85 amp, 115 or 230 volts. $72.50. 120 amp $99.50, 180 amp $199.50. Increase your income with tools from MEYER TOOL CO., 989 So. 50th Ave., Omaha 6, Nebraska.

FOR SALE: Air conditioning 2 hp. hermetic compressors—Model HB200 230 V. 60 cy. 1/phase F-22. Complete with electrical "Power Pack". $79.00 ea. F.O.B. Chicago, Illinois. WALTER W. STARR, 2833 Lincoln Avenue, Chicago 13, Illinois.

Patents *(Cont.)*

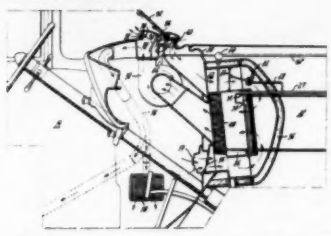
Week of June 30

2,892,316. AIR CONDITIONING DEVICE. Frederick H. Green, Palos Verdes Estates, Calif., assignor to The Garrett Corp., Los Angeles, Calif.



3. A heat exchanger comprising: walls defining a plenum chamber; a first duct communicating with said chamber; a plurality of heat exchange tubes, each closed at one end and open at the other, said tubes extending through said chamber with said closed and open ends disposed exteriorly thereof; a second duct communicating with said open ends of said tubes; passageways through the walls of said tubes providing communication between said plenum chamber and the interiors of said tubes. . . .

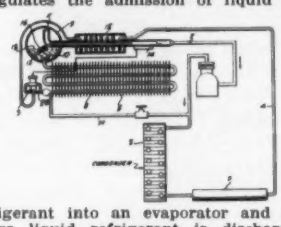
2,892,319. REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



1. In an automobile air conditioning system, a compressor, a condenser, an evaporator, refrigerant flow means connecting said evaporator, compressor, and condenser in refrigerant flow relationship, variable speed blower means having an air inlet and an air outlet for circulating air to be conditioned in thermal exchange relationship with said evaporator, means for introducing fresh air to the air inlet of said blower means, means responsive to the refrigerant pressure in a portion of said refrigerant flow means for controlling the quantity of fresh air admitted to said inlet, and means responsive to initiation of operation of said compressor for energizing said blower means for maximum speed operation.

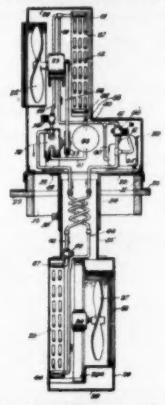
2,892,320. LIQUID LEVEL CONTROL IN REFRIGERATION SYSTEM. Lester K. Quick, Eugene, Ore.

2. A liquid refrigerant level control for a refrigerant level control for a refrigerating system wherein a valve regulates the admission of liquid re-



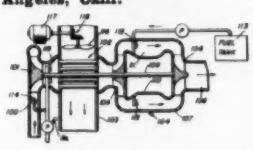
frigerant into an evaporator and excess liquid refrigerant is discharged from the evaporator into an accumulator, the combination of: a major suction line communicating with the accumulator and having an intake end above its normal liquid level to withdraw gaseous refrigerant therefrom. . . .

2,892,321. REFRIGERATING APPARATUS. Richard W. Kritzer, Chicago.



1. The combination of refrigerating apparatus including a motor-driven compressor and an air cooled condenser-coil connected to receive refrigerant from the compressor and mounted outside of a building where it is subjected to outside air; apparatus mounted in and for cooling air inside of the building. . . .

2,892,322. AIR CYCLE AIR CONDITIONING SYSTEM. Helmut Rudolf Schelp, assignor to The Garrett Corp., Los Angeles, Calif.



1. In an air cycle air conditioning system, an expansion turbine including an air inlet for working air at atmospheric pressure and an air outlet to discharge said working air at a pressure below atmospheric after passing through said expansion turbine, nozzle means for introducing a fine spray of water into the working air which flows into the inlet of said turbine, a heat exchanger connected to said air outlet and providing a path for said working air. . . .

(To Be Continued)

Servicing Automobile Air Conditioners

(Vol. 4 — 1959 Models)

BY C. DALE MERICLE

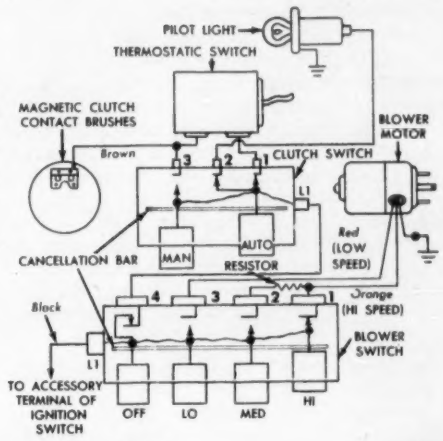


FIG. 6—Wiring diagram of 1959 Ford PolarAire under-dash unit.

FORD (3)

PolarAire Controls

Controls for the PolarAire under-dash unit (Fig. 2) are mounted on the left side of the evaporator case. They operate entirely independent of car heater controls.

Pushbuttons are used for the PolarAire controls.

Four buttons across bottom of panel permit selection of three blower speeds and turning the unit off. Pressing one of the blower control buttons also closes magnetic clutch circuit; pressing "off" button stops blower and breaks clutch circuit.

Two buttons permit choice of "automatic" or "manual" operation. When "automatic" button is pressed, clutch is cycled by the thermostat to control temperature; pressing this button also turns on pilot light at top of panel.

Pressing the "manual" button by-passes the thermostat, thus keeping the clutch energized all the time the unit is on and providing for constant operation of compressor.

Two more buttons, near top of panel, permit changing of thermostat setting when system is on "automatic" operation. Pushing the right-hand button charges the thermostat, in successive steps, for lower temperature; pushing the left-hand button changes thermostat setting, in successive steps, for higher temperature.

Wiring diagram of the PolarAire unit is shown in Fig. 6.

SERVICE HINTS

Use of a separate vacuum pump is recommended by Ford for evacuating its 1959 units following initial installation or opening the system for repairs.

A vacuum of 25 to 30 in. should be maintained by the pump for 20 to 30 minutes, Ford advises.

Refrigerant-12 is employed in the 1959 Ford units. Complete charge is 3½ lbs. for SelectAire, 3 lbs. for PolarAire.

These systems are charged with gaseous refrigerant through the low side in the usual manner.

Performance Test

A fairly good check to determine if the 1959 Ford air conditioners are operating properly can be made rather simply by measuring the outlet air temperature.

The test is made with controls set for maximum cooling, blower on "high," and the car engine running at 1,500 r.p.m.

At an ambient temperature of 75° and 50% r.h., temperature at the air outlet should be approximately 35° below the outside temperature, or in this case, 40°.

When the relative humidity is greater than 50%, the temperature difference will be less than 35°; if the relative humidity is less than 50%, temperature reading at the outlet will more closely approach the 32° evaporator temperature.

Thermostat Test

Thermostats used in both 1959 SelectAire and PolarAire are designed with 28° F. as their coldest setting.

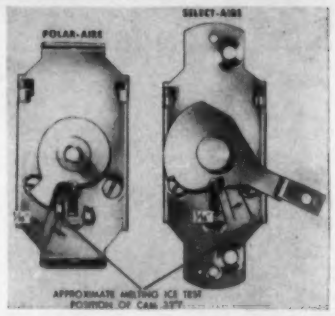


FIG. 7—Where 1959 Ford thermostats should be positioned for 32° F. setting.

Moving the cam approximately 1/16 in. away from the stop at the coldest setting should result in a setting of 32° F. (See Fig. 7.)

Thermostat can be tested, after removal from the unit, by using a container filled with finely crushed ice and water. With cam set for coldest position, insert sensing element in the ice water. If switch clicks, the thermostat is defective.

If the switch does not click, leave the sensing element in the ice and turn cam counterclockwise until a click is heard. Cam should move about 1/16 in. from stop.

With element still in ice water, turn cam back to coldest setting. If switch clicks, it is defective. If it does not click, remove element from ice and expose to air. Switch should click almost immediately—within 5 or 6 seconds at 75°. If it takes longer, it is defective.

Trouble Shooting

No unusual service problems should be encountered with the refrigeration systems of the 1959 Ford SelectAire and PolarAire units. Both use the conventional method of controlling temperature by means of a magnetic clutch cycled by a thermostat, and therefore conventional service procedures will apply.

There can be service involving special features of both units, however.

With the built-in SelectAire model, for example, improper positioning of the various air dampers (blend-air valve, blower inlet air valve, and T-valve), or malfunctioning of the vacuum actuator and/or hot water heater valve, can result in insufficient cooling.

With the under-dash PolarAire unit there could be service problems with the mechanical actuator assembly used to change thermostat setting.

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Steel Shortages--

(Concluded from Page 1, Col. 4)

down its Dayton plant at the end of November. That plant employs about 2,500 workers.

Augenstein said that even a major breakthrough in the steel situation "would be too late to help us." He added that acute shortages could be expected for a month or more after a settlement.

Henry M. Haase, president of York Div., Borg-Warner Corp., said that after mid-November, York may have to operate one production line at a time, it was reported. He indicated that plant layoffs are a "strong probability beginning about Dec. 1."

In Rochester, N. Y., where he addressed a Frigidaire dealer meeting, William H. Anderson, assistant general sales manager of Frigidaire, said the General Motors division had enough steel to continue production through early November.

Availability of steel and length of the steel strike will determine how much production will have to be cut back, he said.

In a nine-month financial report, officials of Whirlpool Corp. said the company expects to continue full production of air conditioners and refrigerators in the fourth quarter but home laundry appliance production will be interrupted early in December.

Whirlpool reportedly moved up the usual starting date for room air conditioner production about a month in order to make as many units as possible before the new Federal excise tax regulation becomes effective Dec. 1.

Admiral Corp., on Nov. 2, cut production at its Galesburg, Ill. plant to a four-days-a-week schedule.

James M. Skinner, president of Philco Corp., said the company has probably enough steel to operate until December.

Sheldon Coleman, president of Coleman Co., had announced earlier that his company would shut down production in its Wichita, Kan. plants Nov. 13.

IAAC Purchase--

(Concluded from Page 1, Col. 5)

ary of ICOF.

International Automotive Air Conditioning (IAAC) organized three years ago, manufactures and markets an automobile air conditioning unit for all makes of American cars.

Its president, Harry T. Kessler, who will continue in that post, said that by Nov. 1, IAAC would commence manufacture of three new products:

(1) an air conditioning unit for all popular makes of European cars and trucks; (2) an air conditioning unit for truck cabs engaged in over-the-highway operations; and (3) a "reverse cycle" air conditioning unit for American automobiles. This unit can produce heated or cooled air—whichever is desired—"by merely pressing a button," it was stated.

The purchase price for IAAC was not revealed, but Edwards stated that Kessler, a majority stockholder, will receive shares in the parent company. The minority stockholders will receive an undisclosed amount of cash.

Tenney To Build Air Conditioned Plant To Make Refrigeration Coils

UNION, N. J.—Tenney Engineering, Inc., major producer of environmental test chambers and heat transfer components, has announced acquisition of an 11-acre tract at Wilmington, N. C., for its third plant.

A new, completely air conditioned building to produce an expanded line of refrigeration coils is already under construction, according to Monroe Seligman, president of Tenney, who said shipments are expected to get under way around the first of the year.

Seligman said the Wilmington facility, a 75,000-sq. ft. building of modern design, will ultimately employ 250 to 300 persons. "We're adding seven complete production lines to our present capacity, making us a dominant factor in the industry," he said.

Tenney, which recently acquired the copper and aluminum coil division of The Kirsch Co., Sturgis, Mich., is currently producing heating and refrigerating components in Baltimore for commercial and industrial applications and for home and auto air conditioners. At its headquarters here in Union, Tenney fabricates chambers in which environmental extremes are simulated for testing airspace and commercial products.

A considerable amount of special equipment will be installed at Wilmington.

The Wilmington plant will be under the jurisdiction of Sid Shapiro, refrigeration and heating products sales manager, as is the one in Baltimore. Shapiro's headquarters are at Union.

Shapiro said one factor in the decision to locate in Wilmington was Tenney's desire for a "completely new" building.

The building under construction is a one-story structure of pre-stressed concrete roof and pre-stressed concrete wall panels. The panels are movable, making it possible to expand the building and to make other changes to meet production needs without undue expense and reconstruction.

Sixty-five-foot spans will permit wide open areas for efficient handling of materials, Shapiro said. The plant, laid out for straight-line flow of production right to the shipping docks, will have monorail conveyors.

In addition to production areas, the building will contain offices, an engineering and test section, a tool room, and raw materials storage.

Shapiro said that "in addition to our regular product lines we have already developed and tested a number of new products that will go into production immediately in the new plant."

At the time Tenney acquired the Kirsch copper and aluminum coil business, it was announced that "the most important outgrowth of the purchase was the widening of Tenney's coil line to include ⅜, ½, and ⅝-in. sizes in a wide variety of finned tube combination to fit virtually every OEM application."

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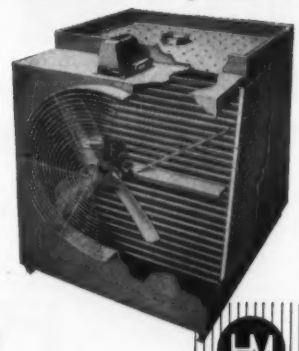

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